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# INTRODUCING SOLID FOOD:

# A DEVELOPMENTAL STUDY OF MOTHERS AND THEIR INFANTS

by

**Niki Kathryn Papaioannou King**

A thesis submitted for the degree of

Doctor of Philosophy

in the University of Durham

Department of Psychology
University of Durham

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TO MY MOTHER

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## Declaration

I declare that the work described in this thesis is all my own, and has not been submitted for any other degree.

## Statement of Copyright

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# C O N T E N T S


Acknowledgments i
Declaration and Copyright ii
Contents iii
Abstract vii

CHAPTER 1: PSYCHOLOGY AND INFANT FEEDING 1

1.1 The History of Infant Feeding 2

1.2 Two Traditions of Research in Infant Feeding 6

1.2.1 Issues from Physiological and Medical Research 7

1.2.1.1 The Physiology of Lactation 7
1.2.1.2 Control of Appetite 9

1.2.2 Issues from Social Psychology and Socialization Research 12

1.2.2.1 Early Feeding and Personality Development: The Psychodynamic Tradition 12
1.2.2.2 Mother-Child Interaction During Early Feeding: The Dyadic Tradition 12

1.3 Theoretical Background - Aims of the Present Thesis 16

CHAPTER 2: INFANT FEEDING - A REVIEW OF PSYCHOLOGICAL RESEARCH 22

2.1 Baby-Centred Issues 25

2.1.1 Sensory Development 27

2.1.2 Development of Preferences and Dislikes 32

2.2 Mother-Centred Issues 43

2.3 Dyad-Centred Issues 50

2.3.1 Feeding as a Forum for Social Interaction between Mother and Child 51

2.3.2 Dyad Styles 57

2.4 Summary 61

CHAPTER 3: METHODOLOGICAL APPROACHES OF THE PRESENT THESIS 65

CHAPTER 4: SOLID FEEDING - A DIARY STUDY 72

4.1 Introduction 72

4.2 Method 82

4.2.1 Pilot Study 82

4.2.2 Main Study 83

4.2.2.1 Materials 83
4.2.2.2 The Sample 84
4.2.2.3 Procedure 85

4.3 Results and Discussion 86

4.3.1 Menu Data 86

4.3.1.1 Strategies in Introducing Solids 86

4.3.1.1.1 The Dyad Sample 86
4.3.1.1.2 Time Course of Introducing Solids 89

4.3.1.2 Responses to Solid Feeding 96

4.3.1.2.1 Feeding in General: Meal Ratings Changing Across Time 97
4.3.1.2.2 Particular Food Items 97a

4.3.2 Mothers' Comments 98

4.3.2.1 Introduction 98

4.3.2.2 Results 103

4.3.2.2.1 Specific Comments: Mother-Centred 103
4.3.2.2.2 Specific Comments: Baby-Centred 109
4.3.2.2.3 General Comments: Mother-Centred 113
4.3.2.2.4 General Comments: Baby-Centred 121

CHAPTER 5: SOLID FEEDING IN THE SECOND YEAR - INTERVIEWS WITH MOTHERS 131

5.1 Introduction 131

5.2 Method 145

5.3 Results and Discussion 147

5.3.1 Issues Relating to the Development of Babies' Preferences and Dislikes 147

5.3.2 Issues Concerning Babies' Appetite and Their Overall Attitude to Eating 156

5.3.3 Issues Relating to Mothers' Policies Concerning: 160

| | | | |
|---|---|---|---|
| | 5.3.3.1 | Food Offered to Their Baby | 161 |
| | 5.3.3.2 | Their Baby's Rejections of Food | 164 |
| | 5.3.3.3 | Conduct During Mealtimes | 168 |
| 5.3.4 | Issues Concerning Mothers' Feelings About Feeding | | 171 |
| 5.3.5 | Issues Concerning Comparing the Baby with His Older Sibling(s) | | 177 |
| 5.3.6 | Issues Concerning Tastes of All Family Members | | 179 |
| 5.3.7 | Some Psychological Aspects of Mother-Baby Interaction During Early Solid Feeding | | 181 |
| 5.4 | Solid Feeding in the Second Year: A Summary | | 183 |
| CHAPTER 6: SOLID FEEDING - A MICROANALYTIC STUDY | | | 189 |
| 6.1 | Introduction | | 189 |
| 6.2 | Method | | 196 |
| | 6.2.1 | Pilot Study | 196 |
| | 6.2.2 | Main Study | 197 |
| 6.3 | Coding of Videotapes | | 199 |
| | 6.3.1 | Introduction | 199 |
| | 6.3.2 | Identification of Behaviours | 201 |
| | 6.3.3 | Coding | 205 |
| | | 6.3.3.1 Definition of Behaviour Units of Cycle/Coding Codes | 205 |
| | | 6.3.3.2 Information Included in the Coded Behaviour Units | 207 |
| | 6.3.4 | Reliability | 208 |
| 6.4 | Results | | 210 |
| | 6.4.1 | General Group Patterns | 212 |
| | 6.4.2 | Individual Consistencies/Differences Across Sessions | 213 |
| | 6.4.3 | Individual Differences Within Individual Sessions | 214 |
| CHAPTER 7: SOLID FEEDING - SUMMARY OF AN OBSERVATIONAL STUDY AND EXPERIMENTAL IMPLICATIONS | | | 217 |
| 7.1 | Solid Feeding: A Diary Study | | 218 |
| 7.2 | Solid Feeding in the Second Year: Interviews with Mothers | | 222 |

7.3 Solid Feeding: A Microanalytic Study 225

7.4 Suggestions for Further Research 226

REFERENCES 232

APPENDIX A Additional Chapter 4 material

APPENDIX B Additional Chapter 5 material

APPENDIX C Additional Chapter 6 material

# A B S T R A C T

The aim of the present thesis is to introduce solid feeding as a topic of psychological interest. The focus is on the management of early solid feeding from the point of view of the Mother, the Baby and the Dyad. This pragmatic (rather than psychological) distinction reflects the conviction that the issues involved cannot be investigated on a single level of analysis.

Three methodological approaches were employed to study these diverse issues:

(1) The aim of the Diary Study was to accumulate a large amount of detailed and reliable descriptive information on both the "routine" and the more "social/psychological" matters involved in early solid feeding. Over a period of three months Mothers kept day-by-day records of the food offered to their baby, as well as his reactions to specific food items and entire meals, and their own comments.

(2) The Interview Study sought to follow the progress of solid feeding into the child's second year, and to give mothers the opportunity to share their feelings and attitudes concerning feeding. Interviews were conducted at three six-monthly intervals following completion of the Diary.

(3) The aim of the Microanalytic Study was to investigate the moment-to-moment interaction between Mother and Baby during early solid feeding. Microanalytic techniques were employed to analyse videotaped feeding sessions.

In addition to its primary, descriptive goal, the research reported in the present thesis offers many insights concerning both the questions to be addressed and the methodological approaches to be employed by further research.

# Chapter One

## Psychology and Infant Feeding

Feeding babies is without doubt a very important caretaking activity. Its evolutionary significance is obvious: food must be provided to dependent young of the species to ensure survival.

The present thesis will be focusing on the psychological aspects of early feeding and will argue that these aspects have been neglected by researchers.

This first chapter will begin with an historical overview of how research in the area has evolved and then proceed to introduce the 'psychologically' relevant issues. It will end with a summary of the aims of the present thesis and its theoretical background.

Scientific literature seems to show interest in general issues related to child development from the 16th century onwards. The earliest such book to be published in English was Thomas Phaire's "The Regiment of Life" with a section entitled: 'The Booke of Chyldren'. Medical interest in the topic of child development seemed to develop in the Georgian period. The 18th century produced more than a dozen books in this country, and by the first half of the 19th century the amount of related literature had doubled. Since then, most aspects of childhood have received a large amount of scientific attention.

Most of the early books give some information on the infant feeding practices of the specific period they are dealing with. However, they tend to be more descriptive than explanatory: "But while at each period the authors describe the customs of their day, they naturally do not, because they cannot, explain the factors that were helping or retarding the evolution of their practice" (Forsyth, 1911, p.111). In recent years, researchers interested in feeding seem to have come from a medical tradition rather than a psychological one: their focus is more on what are the nutritional requirements of children of different ages rather than on what are some of the factors "helping or retarding the evolution of their practice".

Feeding babies has always been (and as far as one can say will continue to be) a part of everyday life for parents and as such is influenced by the socioeconomic and cultural context of the period. What is the historical record of this everyday activity?

1.1

## The History of Infant Feeding

Forsyth (1911) offers a very comprehensive history from Elizabethan times up to the early 1900's. Wickes (1953) gives yet another detailed history starting from Rennaissance writers and ending with the closing of the 19th century. More recently, Cone (1981) discusses the history

of infant feeding practices between the 15th century and present times. On much more specific aspects of early feeding, Adams (1959) describes the use of vegetables in infant feeding from the Middle Ages to the 20th century. For the present purposes, the focus will be on Forsyth's (1911) description: having written at least half a century before the other writers mentioned, the language he uses as well as his style of writing seem more appropriate in describing the practices that <u>were</u>.

Forsyth remarks with surprise that "with the widespreading interest that is now bestowed on the conditions of infancy, and with measures being taken on every side to check the ravages of infant mortality, a history of the cardinal factor in these problems should be both opportune and useful. It is, indeed, strange that the ground should never have been broken" (p.110). And a little further on, while referring to the work of earlier generations, he comments: "...they rarely...preserved for us any of those details of infant life which, commonplace enough to them, would have had so full an interest for us" (p.110).

The information about early feeding that Forsyth reviews comes mainly from three sources: 1) the early books on the development of children, which in fact were very few indeed until the first half of the 19th century; 2) the social records of each period; and 3) family letters, although "all too rarely, however, do these occur" (p.111).

When discussing feeding practices, Forsyth primarily deals with milk feeding. And his main conclusion is that: "perhaps the most significant fact that this history has brought out is the progressive decline in the period of suckling" (p.138). He makes an interesting point about the period of weaning during the 17th century, mentioning that there were two requirements that had to be fulfilled before weaning could be attempted: "a full complement of teeth" and "the child must not be weaned with the moon on the wane" (p.119). The child was to be weaned from the breast quite abruptly, and if necessary "a homely, if nasty, remedy is recommended, namely to smear the mother's nipples with wormwood or aloes. If by this means the child, now two years old, was successfully prejudiced against the natural source of its nourishment, the choice of its artificial foods was easy enough" (p.119).

The first solid foods the baby was introduced to were usually pap and chicken broth, followed by bread, milk, and 'pulse boyled'. As for meat, it had to be first chewed by the nurse.

During the Georgian period, weak broth and beef-tea were among the first solids to accompany milk teeth. These were generally followed by "the wing of a boiled chicken, minced" (p.122). A sweetener (Lisbon Sugar) was added to the child's bread-and-water pap for the first time. In 1827, the German writer Struve suggests that after weaning, "two or three beaten egg-yolks stirred into a quart of beer,

boiled and sweetened...of this the child may take small portions several times a day" (p.123).

Towards the end of the 18th century, through the work of Dr. M. Underwood, there is a serious attempt to "place the subject on a scientific footing" (p.125). He stresses the importance of breast milk for the healthy development of the young baby and disagrees with the tradition of offering solids early. However, he also acknowledges that artificial milk might be necessary under certain circumstances. Hence, he attempted to find a type of milk which would represent as far as possible that of the mother: he compared the chemical composition of the latter to various other animal milks and concluded that cow's milk is the second best for the average child. As far as solids are concerned, he advises rice, semolina, and tapioca, foods that were up to then relatively new and not commonly used in England.

The main focus of interest in the medical commentary of the 19th century is on artificial methods of feeding. "My own experience is that medical men, except when working among the poor, whose ignorance is a fatal objection, are inclined to regard the feeding bottle with less disfavour than they used to when its risks were greater. In doing so, they are displaying a practical appreciation of what history proves to be the modern trend of infant feeding" (Forsyth, 1911, p.140).

Reading these accounts should remind us that the

practices and beliefs concerning infant feeding practices have been changing over the years. These changes have, to a certain degree, been influenced by cultural, economic and social factors. It is beyond the scope of the present thesis to speculate on the possible correlations between the above factors and infant feeding practices. However, it is felt that researchers in the area must always acknowledge that secular changes DO occur and incorporate this knowledge in their studies. In the following quote from the English translation of Roessling's 'Rosengarten', by R. Jonas, in 1540, it is quite obvious that not only the language of the 16th century differs from today's. Many more things have changed as well: "Avicen avyseth to geve the chylde sucke two yeres/ howe be it among us most commenlye they sucke byt one yere. And when ye wyll wene them/ then little pills of bread and sugre to eate and accustom it so/ tyll it be able to eate all manner of meate" (in Wickes, 1953).

1.2

## Two Traditions of Research in Infant Feeding

Psychological interest in feeding babies emerged at the beginning of the century with the work of Freud. Freud stressed the importance of the baby's sucking at his mother's breast as a means both of survival (its nutritional importance) and of pleasure (autoerotic sucking). His main point was that excessive frustrations or gratifications of these vital functions would lead to fixation and/or

regression later on in life: in other words, that early (breast) feeding experiences affect the existence and degree of oral traits in individuals (Gardner, 1982).

Freud's arguments have been influencing infant feeding practices up to the present. At a time when alternative (ie 'artificial') methods of feeding are readily available, the debate becomes even more forceful: what is best for the child and the mother? This debate has resulted in ample research and advice on infant feeding, at times conflicting, which is addressed to those involved in the care of children: psychologists stress emotional and social factors while clinicians stress factors of health and nutrition.

Let us now identify some of the issues that have emerged from the early studies on feeding- studies which, as mentioned earlier, concentrated primarily on nursing. These can be divided in two main categories: Issues from Physiological and Medical Research, and Issues from Social Psychology and Socialization Research.

1.2.1

## Issues From Physiological and Medical Research

1.2.1.1

### The Physiology of Lactation

The medical tradition is quite rich in research on the physiological aspects of lactation (eg. Thomson and Hytten,

1981; Picciano, 1981). Questions addressing the hormonal control of lactation and the actual composition of breast milk have been extensively investigated. Findings in this area have greatly influenced the technology of the production of artificial milk: efforts have been made to ensure that it resembles breast milk as much as possible. More recent work has dealt with the specific composition of breast milk during the various phases of a breastfeeding session and the exact amount of milk taken by the baby at each session (Lucas, Lucas, and Baum, 1979; How, Ashmore, Rolfe, Lucas, Lucas, and Baum, 1979; Drewett and Woolridge, 1979). The advancement of technology has definitely improved the means to investigate very subtle issues concerning the physiology of lactation. These findings will without doubt open up new options for the feeding of babies. In addition, they will hopefully supply the knowledge necessary to make decisions for the wellbeing of individual children.

The medical tradition has provided a very rich background on the physiological aspects of lactation. In addition, it has underlined the role of sucking in contributing to, for example, the production of the let-down reflex (Newton and Newton, 1950), and prolactin secretion during nursing (Tyson, 1977).

It is only recently that some psychologists have combined this medical knowledge with their own findings and insights concerning the role of the baby's behaviour in

successful breastfeeding. Hence, instead of viewing lactation merely as a purely physiological, 'one-way' process, these researchers discuss the relationship between physiological factors in the mother and physiological factors in the baby during early breastfeeding. The main focus has been on how the baby's sucking pattern changes following changes in the flow rate of the mother's milk (Drewett and Woolridge, 1979; Woolridge, Baum, and Drewett, 1980). This research tradition seems to lead to a more psychological set of issues concerning the interaction between mothers and their babies during early breastfeeding and how this might affect both milk flow and changes in the baby's sucking pattern. Nevertheless, psychologists have not as yet been interested in pursuing these issues. The terms 'lactation' and 'sucking' have not been studied in the psychological context of the interaction between the two partners involved. The present thesis will attempt to highlight some of the psychological aspects of the interaction between mothers and their babies during early solid feeding. It will do so in terms of the preferences and social signals of the baby on the one hand and the feeding strategies of the mother on the other.

1.2.1.2

Control of Appetite

During the past twenty years, there has been a dramatic

shift in our conception of the newborn's role in his interactions with the environment. His 'preparedness' ("the competent infant") is reflected in all aspects of his development: sensory/physiological as well as social/interactional. Let us for the moment consider the former in relation to appetite control.

It is established that the taste buds of the foetus reach their morphologically mature form by 13 to 15 weeks of gestation (Bradley and Stern, 1967). Hence, even before birth the infant may have already had taste stimulation from the intrauterine environment. Misstretta and Bradley, (1977) remark: "Although we do not yet understand the significance of the early intrauterine structural and functional development of the taste receptors, we do have enough information to suggest that prenatal experience cannot be ignored" (p.62).

Having established the newborn's anatomical pre-adaptation for taste perception, researchers have proceeded to find and employ methods in order to 'reveal' the infant's sensitivity. The findings of this research will be considered in greater detail later on. For the moment, let us just summarise them. Current research suggests quite firmly that the newborn's chemical senses are active from the start. Neonates and young infants not only show specific taste preferences and dislikes, but can also discriminate fairly slight differences in concentration of various sapid solutions. In particular, they demonstrate a

definite preference for sweet and a definite dislike for sour. Psychologists have made a significant contribution in the investigation of sensory control over intake. Nevertheless, their interest seems to stop very early in the history of taste development. Their work focuses on the reactions of neonates to the four 'basic' tastes. They have completely neglected taste development later in infancy and in older children. More specifically, the question of how infants manage to cope with the variety of tastes and flavours introduced during early solid feeding has received no psychological attention at all. It is the medical literature again that offers information on the kinds of solid food that should be introduced to a baby's diet and the appropriate timing of this introduction. The relevant questions are answered on the basis of knowledge of energy demands and the physiology of the developing baby: when can his system successfully and usefully cope with specific kinds of solid food? These issues are definitely very important guidelines for all those involved in feeding children (mothers and the medical profession). However, they only seem to address one aspect of the feeding issue. After all, feeding is a two-way affair between the child and his caretaker. There is without doubt a psychological dimension to it; a dimension which has been neglected as an area of study. The present thesis will explore some aspects of the development of babies' appetite within the context of this psychological dimension.

1.2.2

## Issues from Social Psychology and Socialization Research

1.2.2.1

### Early Feeding and Personality Development: The Psychodynamic Tradition

As mentioned previously, much early psychological interest in feeding babies arose from the work of Freud. Although both he and his followers acknowledged the nutritional importance of breast feeding, they were more interested in how these experiences, and the variety of forms they can take, influence personality development. They concluded that specific early feeding experiences lead to specific and more-or-less irreversible personality traits (Hall and Lindsey, 1970). The influence of psychoanalytic theory in the thinking of Psychology has been paramount. In terms of feeding, it most probably gave the first insights that there may be something more to consider than mere nutritional importance: something of psychological interest.

1.2.2.2

### Mother-Child Interaction During Early Feeding: The Dyadic Tradition

Freud's specific approach does not receive wide support in its current form. His claims that early feeding experiences have an irreversible and specific effect on the development of the child's personality have been discarded.

However, his main theme that early experiences can play an influential role in later development has been the starting point for most contemporary research in social development. The irreversibility of these early influences has been challenged. However, the acknowledgement of their existence has made possible their further and more detailed investigation and analysis. Around the mid 1960's there was a change from this traditional approach to studying social development. The focus of research interest was shifted from the study of isolated, individual intrapersonal events to that of the interpersonal contexts in which these events occur. Hence "the social dimension of behaviour patterns" (Schaffer,1977, p.3) became a vital element of each unit of study: the dyad rather than the individual.

Within this tradition, psychologists have been interested in between mother and child during their various joint (caretaking) activities. How do mother and child 'get to know each other'? How does a communication develop? What are the cues used by each to signal to the other and how are these cues perceived and interpreted? What are some of the factors influencing the perception of these interpersonal cues?

The overall assumption behind these questions is that, although early experiences may not have the irreversible effects that Freud and his followers suggested, they actually do have a real importance for the child's social development. In the words of two distinguished researchers

in the field, "it is...submitted that early experience exerts its influence through setting up patterns of perception, expectation, and action which interact with further environmental influences: these patterns, in the absence of gross changes in either the nature of the environment or the structure of the organism, can make for underlying continuities in developmental processes across wide segments of the developmental years" (Ainsworth and Bell, 1969, p.162).

As far as mother-child interaction during feeding is concerned, some earlier work focused on the influence of early (breast) feeding on the emotional closeness of mother and child (e.g. Klaus and Kennel 1976). The difference in technique between breast feeding and bottle feeding has been the focus of research by Wright, Fawcett and Crow (1980) and Crow, Fawcett and Wright (1980), who discuss how feeding technique influences corresponding feeding behaviour in the dyad: breast feeding allows the baby more control over the feeding situation, whereas in bottle feeding it is the mother who has more control. This issue of control is further discussed in relation to the learning of satiety cues and the development of obesity. Only very recently, and even then to a limited degree, has feeding been considered as one of the settings in which social development and learning may also occur. The dyadic tradition has influenced researchers studying various aspects of early child development. As far as feeding is concerned, the main focus has been on early milk feeding.

Kaye (1977) gives a very characteristic and, possibly, unique example of the moment-to-moment interaction between mother and baby during early milk feeding. Ainsworth and Bell (1969) and Dunn and Richards (1977) have also studied the interactions that develop between mothers and their babies during feeding, using a variety of observational methods. The common theme of this research tradition is that the early feeding setting is a potentially very 'rich' social setting as well.

To summarise, although psychologists have been interested in feeding since the early 1900's, their focus has been limited to nursing. The period when solids are introduced to children's diets has received no research attention at all. In the last twenty years, developmental psychology has emphasized a more child-centred approach; psychologists are focusing on the child as an individual in his own right from birth and are highlighting the influence of individual children on their caregivers. In addition, new methodological approaches and techniques have appeared: the scope for new approaches is widening. In the following section the focus will be on the aims of the present thesis in relation to some aspects of early feeding which have been previously neglected by psychologists as well as the theoretical background, based on the new approaches of contemporary developmental psychology, within which these issues will be investigated.

1.3

## Theoretical Background - Aims of the Present Thesis

Babies do not survive on milk alone, whether artificial or breast, for a very long time. Depending on the historical and sociocultural environment in which they are growing, solid food of some kind is introduced to their diets at one point or another. However, the absence of psychological research in this area is striking (the medical literature seems to provide all that is available, but again only in relation to the child's physiological needs and capacities). Solid feeding, and especially the period when solid food is being introduced to babies, seems to be a neglected psychological topic. This fact becomes even more apparent if one considers the disproportionate research emphasis on nursing. The introduction of solids marks a period of new experiences for both mother and child. This 'novelty' would seem to be in itself a good enough reason for psychologists to want to investigate its management. How do mothers and their babies cope with these new experiences? Why is it that these experiences appear to be smooth for some dyads and difficult for others? What insights can be gained from studying mother-child interaction in the former group in order to help mothers and babies for whom feeding times are problematic?

The above questions provide strong reasons for studying early solid feeding. Since there has been virtually no research in the topic, the aim of the present thesis is to

introduce solid feeding as an issue of psychological interest.

As mentioned above, in the last fifteen years or so, there has been a shift in the focus of child development research which has been primarily triggered by the acknowledgment of a child-centred view of development.

The one-sided approach that it is either the environment or factors within the child which trigger and monitor development has been abandoned. The child is neither exclusively the product of external (environmental) forces, nor exclusively that of internal (maturational) ones. Instead, the development of each child -and indeed that of every individual- is seen as a lifetime of complex interactions between internal and external forces. "The infant and his social world are in constant interaction; just as the biological infant structures and modifies his social environment, so he is socially structured by it and his biology is modified" (Richards, 1974, p.1).

The child-centred view acknowledges the infant's preadaptation, his preparedness in relation to both sensory and social development. In addition, it emphasizes the child-directed nature of early interactions.

Firstly, a child-centred orientation highlights sensory development. The infant's senses are active from the start. Newborn babies both see and feel much more than was

previously believed. This development has a social element as well: newborns selectively orientate towards human stimuli. This selectivity facilitates social encounters. Hence, the baby is also equipped to participate in human interactions from the start.

Secondly, a child-centred orientation applies to social development. The child is seen as an active participant in a series of interactions starting at birth: babies influence the behaviour (the reactions) of the adults in their environment with their own behaviour from very early on. Hence, behaviour is conceived in <u>dyadic</u> terms. The contemporary view among psychologists is that the child enters the world with the potential to be an active member of society (social pre-adaptation), even though it will take some time -a lot of learning- before he is capable of true reciprocal relationships. The first steps in this learning process will take place within the child's first social exchanges; in other words he will learn from his interactions with his primary caretakers. The long period of dependence of the human infant on adults will provide a rich forum for learning and further development of the social potential present from the start (Bruner, 1972).

Thirdly, a child-centred view draws attention to how adults <u>attribute psychological qualities</u> to the infant. This tendency stems from the acknowledgment that babies participate in, and indeed at times direct, social interactions. And it is these attributions that to a

certain extent guide further adult-child interactions.

The change in focus of child development research from individual patterns of behaviour or traits to the interacting dyad and the importance of the interpersonal context in influencing social development, was matched by an emphasis on the significance of everyday routines for developent. The argument psychologists put forward is as follows: since, overall, children throughout the world manage to attain the landmarks of development more or less successfully, wouldn't it be justified to assume that their experiences have common elements? That despite cultural and/or socioeconomic differences, children universally share at least some common experiences? And if the answer to this question is affirmative, couldn't we proceed by assuming that these common experiences are most likely to be found in the routine, everyday activities that most children and their caretakers share? Another, less wordy and complicated, way of expressing the rationale behind this argument could be: if we are interested in studying child development, souldn't it be necessary to study the process within its natural location, ie. the everyday settings? In recent years a great number of researchers in the area of child development, and in particular socialisation, have studied various aspects of development within the context of mother-child interaction. Social, cognitive and even linguistic aspects of development have been described as two-way affairs between mothers and their babies rather than as relating to the child alone. A few representative

samples in this tradition will be discussed later on. For the moment, it is sufficient to stress that the research reported in the present thesis has been greatly influenced by this tradition.

The aim of the present thesis is to investigate early solid feeding within the contemporary child-centred framework. It has been established that even newborns have taste preferences and dislikes. Very little is known about the preferences and dislikes of infants. It has been established that babies can direct social encounters. There is no research available on the role of babies in social interactions during early solid feeding. We know that parents attribute psychological qualities to their babies. But we have no information on what sort of attributions they make in the solid feeding setting and on how these attributions influence further interactions with their baby. More specifically, the present thesis will attempt to address the following questions in relation to early solid feeding:

A. Although feeding may eventually become a very routine activity for some mothers and their babies, experience from informal discussions with mothers as well as doctors and health visitors shows that for others it can be a time of great unhappiness and turmoil. How can these dyads be helped? At least part of the answer is likely to be found in studying the feeding experiences of mothers and children for whom feeding is "easy". <u>What</u>

are some of the factors that contribute to the smoothness of interaction during feeding? In other words, the present thesis is interested in: a) the strategies mothers develop when introducing their children to solid food, and b) the child's reactions to the new experience of solid food. The former includes both the practical steps mothers take (e.g. what food to introduce and when) and the more psychological ones (eg. their attitudes and feelings towards this new experience); the latter, the motivational aspects of eating (the development of children's food preferences and dislikes) as well as the more social/developmental ones (feeding as a forum for social learning and development).

B. Current research in child development and in particular socialisation stresses the importance of studying development in the everyday, universal contexts in which it occurs. Feeding is without doubt a very obvious such setting. Furthermore, it is characterised by having a specific goal and structure: it is a time when mother and child must genuinely cooperate. What form or forms does this cooperation take? And how does it develop within this interpersonal event? In other words, the present thesis is interested in the social/interactional dimensions of feeding. After all, early solid feeding is a two-way affair between the child and his mother. How do these two individuals tune in to each other in order to accomplish their goal?

# Chapter Two

## Infant Feeding: A Review of Psychological Research

As mentioned at the end of the previous chapter, the aim of the present thesis is to introduce solid feeding as a topic of psychological interest. As far as feeding per se is concerned, the primary interest is in determining some of the psychological factors that are relevant to its smooth management. On a more general theoretical level, speculations will be made as to if and how the smooth management of feeding can contribute to the course of development.

This chapter will include, 1) an outline of the psychological issues related to early solid feeding which the present thesis will be exploring, and 2) a review of the research already available on these issues. Let us start by identifying the issues. The main focus will be on three sets: A) Baby-Centred Issues, B) Mother-Centred Issues, and C) Dyad-Centred Issues.

Before describing these issues, it is felt appropriate to make a clarifying point: it is not implied that the distinction between these three categories of issues is a psychological one. It is more of a pragmatic distinction. A distinction that will help in the analysis of the data. In fact, one could visualise these issues as constituting an imaginary 'continuum' looking like: Baby-->Dyad<--Mother. Some issues seem more clearly located toward one of the

'ends' of the continuum. Others seem to belong more to the 'dyad' area, thus reflecting the signals and responses between Mother and Baby during feeding. Crow (1977) offers a framework for analysing infant feeding which also reflects this continuum of issues (her sample includes 3-day-old infants which she follows up for 6 months). The overall aim of the research to be reported in the present thesis is to is to study mothers and their babies during early solid feeding. The focus is often on the behaviour of each member of the dyad, but it is fully acknowledged that this behaviour is invariably related to that of the other member. The two are no doubt interdependent. Nevertheless, the distinction seems helpful both from a theoretical point of view (identifying the issues) and from a practical one (analysing the data).

A. Baby-Centred Issues. These refer primarily to the motivational aspects of eating; to the perceptual experiences associated with food. How does appetite for different kinds of food develop? Do children have food preferences and dislikes? If so, when do these appear? How prone are they to change over time? What are some of the factors that might affect their stability or change? It is felt that the knowledge acquired from studying these motivational aspects of eating will contribute to the general ease of feeding. Once more is known on the nature of preferences and dislikes and whether they can be modified, it will be easier to decide: 1) what to feed children, and 2) what strategies to employ in doing so.

B. Mother-Centred Issues. These deal with 1) the more specific question of the feeding practices of mothers, and 2) the more general/psychological one of how mothers develop a theory of their children's behaviour. Hence, the specific questions addressed in relation to the first question will be: How do mothers go about offering solids to their babies? What 'practical' strategies do they use? And in relation to the second question: What are the attitudes of mothers to feeding? How do they perceive their child's feeding behaviour? How do these attitudes and perceptions change (or not change) over time? What are some of the factors affecting their change or continuity? If and how do mothers perceive (their attitudes and feelings towards) their baby as an individual in his own right during this new shared dyad experience? And, to what extent, if at all, do mothers construct feeding as a social event and an occasion for the baby to reveal a distinct personality?

C. Dyad-Centred Issues. Feeding is an interpersonal series of events. Mother and child are in continuous behavioural interaction. How does this interaction emerge and develop? What cues are transmitted between the participants? What are some of the factors influencing the way these cues are perceived? How stable are these cues over time? What are some of the factors affecting their degree of continuity or change?

Before considering in some detail the literature available in relation to each one of these issues, it is

felt necessary to make two introductory comments. 1) As mentioned earlier, the focus of the present thesis is on the period when solids are being introduced to children's diets. Psychological interest in the area has been very limited. Hence, the literature reviewed will necessarily include work on infant feeding as a whole, including nursing. An attempt will be made to gain insights from this more general area for the more specific aims of the present thesis. 2) As will soon become apparent, the research reviewed is very diverse, coming from a variety of fields and research traditions. The integrative idea is to discern the factors that contribute to making the feeding process a smooth one.

## 2.1

## Baby-Centred Issues

### 2.1.1

### Sensory Development

The shift in our perceptions concerning the newborn's active participation in the interactions with his environment is reflected in all aspects of his development. In 1900, Shinn suggested that: "many babies suck at a 2% solution of quinine as if it were sugar; so it seems unlikely that the mild and monotonous taste of milk and the neutral smells by which any well-kept baby is surrounded, are really perceived at all...the weight of evidence points to an almost dormant condition of the two senses". This view is definitely now in question. Current research

demonstrates that the composition and, thus probably, the taste of breast milk is not at all 'monotonous' (eg. Knowles, 1966; Hall, 1975). And it is surely not the case that our 'well-kept' modern babies are surrounded by 'neutral smells'.

As mentioned earlier, it has been established that the taste buds of the foetus reach their morphologically mature form by 13 to 15 weeks of gestation (Bradley and Stern, 1967). Hence, one can speculate that even before birth the infant may have already had certain taste-related sensory experiences from the intrauterine environment (Misstretta and Bradley, 1977). Weiffenbach et al (1980) stress that the gustatory system is 'functional' towards the end of gestation and refer to earlier claims which demonstrate how swallowing of amniotic fluid by the foetus can be manipulated by injecting various tastants into it.

Having established the newborn's physiological pre-adaptation for taste perception, let us now look at how researchers have attempted to investigate and 'reveal' this ability. What methods have they employed? What are the characteristics of babies' reactions to specific tastes? Lipsitt (1977) gives a detailed historical summary covering the last 20 years of research dealing with neonatal taste. Weiffenbach et al (1980) describe and compare the five major methods employed to study taste in neonates. Finally, Beauchamp (1981a) gives a more concise review discussing the advantages and disadvantages of each method and stresses

that "different methods provide different kinds of information" (p.415). The literature discussed in this section is drawn mainly from this third review.

One technique employed to investigate neonatal taste has been to study facial expressions (Steiner, 1979). In fact this is the oldest method that has been used (Kussmaul, 1884-cited in Beauchamp, 1981a). Although there is a major advantage to this technique, namely that it actually determines discrimination among tastes rather than only acceptance or rejection, it has two major disadvantages: 1) high concentrations of any specific tastant are needed to elicit a response, and, 2) sophisticated techniques required for properly quantifying these expressions are only now becoming available.

A technique which is more precise and easier to administer is that of measuring the volume of solution ingested (Nisbett and Gurwitz, 1970; Desor, Maller and Turner, 1973; Maller and Desor, 1973). An additional advantage of this method is that postingestional factors are minimized -although not completely eliminated- because only brief presentations of the tastant are required in order to obtain a response.

A third technique is that using parameters of sucking as the dependent variables (Engen et al, 1974; Nowlis and Kessen,1976; Crook, 1978). Although this method is characterised by great precision and has the advantage of

minimal postingestional effects, it has two disadvantages: 1) it is technically difficult, and 2) the relationship between sucking parameters and other measures of preference are not always obvious; in other words, it is not known if these various indices actually measure the same underlying process.

Recordings of tongue movements and physiological measurements correlated with feeding are the remaining methods employed. Maller and Desor (1973) cite two earlier (pre-1930's) attempts with these methods. Lipsitt (1977) uses heart rate as the dependent variable and studies how this can be modified by various concentrations of sweetness. Weiffenbach (1977) and Nowlis (1977) use tongue movements as a reflection of the child's response to various taste solutions.

What are some of the findings of these sophisticated techniques? What do they tell us about the neonate's taste system?

It must be stressed before continuing, that when preferences and dislikes are discussed -at least during this early period of life- they refer to "relatively few of the potential taste stimuli" (Beauchamp, 1981b). In fact, it is primarily the four 'basic' tastes which have been studied: sweet, salty, sour, and bitter. When defining taste, these studies do so in a very anatomical way, "thus the definition excludes the olfactory sense which is important in the

recognition of foods" (Beauchamp, 1981a, p.414). With this in mind, let us look at what contemporary research has revealed in terms of preferences and dislikes of neonates to these four 'basic' tastes.

1). Sweet Stimuli. Results from research employing facial expressions, sucking parameters, and volume ingested as the dependent variables, can be summarised as follows: "There is a preference for sweet at some levels relative to unsweet, it is an unlearned preference present from birth and it appears to be unaltered from birth through adulthood" (Desor, Maller, and Greene, 1977, p.171).

2). Salty Stimuli. The results in this area do not seem to be as clear as they are in the study of the reaction of neonates to sweet stimuli. There seems to be a certain amount of conflict as to whether their response to weak and moderate NaCl solutions is indifferent (Desor, Maller and Andrews, 1975) or, in fact, hedonistically negative (Crook, 1978). Beauchamp (1981a) suggests that "a careful analysis of a whole range of parameters of sucking in response to NaCl would be particularly useful...and...could provide clues as to why these methods are not in agreement" (p.419).

3). Sour Stimuli. Two main methods have been employed to study neonatal reactions to sour stimuli: 1) facial expressions (Steiner, 1979), and 2) volume of solution ingested (Desor, Maller and Andrews, 1975). These results seem to be in agreement both among themselves and with

earlier research on sour stimuli (cited in Lipsitt, 1977): the response of newborns to such stimuli is hedonistically negative.

4). Bitter Stimuli. Facial expressions (Steiner, 1979) and inhibition of sucking (Nowlis, 1973) have been used to demonstrate the unpleasantness of bitter stimuli (eg. quinine) to neonates. Desor et al (1975) employed various solutions of urea (which is not toxic and consequently higher concentrations can be used) and demonstrated that 'the human newborns did not vary the volume they ingested as a function of the presence or absence in water of...urea' (p.968). Nevertheless, by adult standards, these solutions are bitter. Beauchamp (1981a) concludes that this discrepancy might be due to the fact that bitter is the most heterogeneous of the four 'basic' tastes. "Clearly, our knowledge of the responses of the newborn infant to bitter stimuli is at a relatively primitive stage" (p.420).

To summarise then, current research suggests quite firmly that the newborn's chemical senses relating to taste are active from the start. Newborns seem to have a definite preference for sweeter solutions and a definite dislike for sour ones. The difficulties in specifying their reactions to salty and bitter solutions seem to be more methodological in nature. With this knowledge in mind, one could take the insights derived from the above-mentioned research a step further and ask: "Do they (the chemical senses) have an important functional significance at this time?" (Crook,

1987). And then, possibly, continue to answer: "We might expect their most essential role to be their most familiar: control of feeding" (Crook, 1987). Let us try to justify this answer.

Recent research has demonstrated that mother's milk, far from being "monotonous" in flavour as Shinn (1900) proposed, changes in composition depending on the mother's diet (Knowles, 1966). It seems then reasonable to assume that it provides "at least a potential for modulating the nursing child's intake" (Crook, 1987). It has also been established that the composition of mother's milk changes throughout a single feed (Hall, 1975). Hall has continued her argument, suggesting that in fact it might be this change in composition of milk within one single feeding session which signals to the baby that the session is reaching its end. One could even take this argument a step further and propose that this changing of milk's composition might gradually help the baby become aware of feeling full, of having had enough to eat. It might help him make an association between the ending of a feed and the feeling that this ending under normal circumstancs produces, ie. one of being satiated or contented. This latter point is open to argument. Woolridge et al (1980) have demonstrated that it is the change in flow rate of breast milk rather than its change in fat content levels within a feed that modifies a baby's pace of sucking. However, "even if the chemical senses are found not to be involved in the intake control at the breast, the experience they provide at that

time may contribute to events that occur later, at weaning" (Crook, 1987).

Although we do not have any firm evidence on whether and how early sensory experiences influence the origins and development of food preferences and dislikes in humans, work on other animals suggests that there could be such influence.

Carpetta and Rawls (1974) and Galef and Anderson (1972) have shown that at weaning, rats show a preference for flavours that were included in their mothers' diet during the sucking period. Apart from these experiences which are specifically linked to sucking, on a more general level Carpetta et al (1975) showed that if young rats had experienced a wide variety of flavours early on in life, they seemed more likely to accept unfamiliar foods later on. Combining these two streams of research one could make the assumption that the breast-fed human infant, having had more flavour experiences than the bottle-fed one, would be easier to wean. There are no definite findings on this issue as yet. Nevertheless, the animal research cited provides a strong piece of evidence that early feeding experiences DO MATTER for the further development of preferences and dislikes.

2.1.2

<u>Development of Preferences and Dislikes</u>

Having briefly considered the origins of taste preferences and dislikes, it seems appropriate to continue by discussing how these preferences and dislikes develop beyond the newborn period. As mentioned earlier, there seems to be a great gap between our knowledge of preferences and dislikes in the neonate on the one hand and how these change over time on the other. Beauchamp (1981a) attributes this discrepancy, at least partly, to the fact that the growing infant is such a rapidly changing organism; hence, the variables used for measuring the various aspects of his development have to be continuously modified to match the age group they are appropriate for (for example, sucking rate very soon ceases to be an appropriate measure of preference).

Let us now consider a few examples of this limited research. Desor (1977) carried out a cross-sectional study on taste preferences for sweet solutions at birth, two, six, and twenty four months of age. She found no significant age change in the proportion of sweet water intake as compared to that of plain water. Beauchamp (unpublished manuscript-cited in Beauchamp, 1981a) came to the same conclusion testing three and four year old children. In a methodologically similar study on the development of preferences and dislikes for salty stimuli, Beauchamp and Maller (1977) found that between birth and six months of age, babies seemed to react indifferently to solutions of salt (0.05M, 0.10M, 0.20M NaCl). However, by the time they reached the age of two, their behaviour was similar to that

of adults: the salt solutions were rejected. Nevertheless, if one considers how adults react normally to salt on foods -rather than to the definitely unnatural laboratory stimuli of pure salt solutions- their reaction is quite different. In many cultures, including our own, a limited amount of salt on some types of food makes them much more pleasant. Beauchamp (unpublished manuscript- cited in Beauchamp, 1981a) found that by the age of four, adding NaCl increased the child's liking for at least one type of food (pretzels). However, there is no evidence of when this preference develops. In fact, Fomon et al (1970) assert that: "consumption of strained foods for normal 4-month old and 7-month old infants did not appear to be influenced by whether or not sodium chloride had been added" (p.242).

An area these studies have not dealt with is that of individual patterns of taste development. Since it has been established that individual differences in preferences do exist among adults (Pfaffmann, 1961; Thomson et al, 1976), one might want to look back in their developmental history and see when specific preferences and dislikes initially emerged and then study how their developmental history has progressed. To phrase this issue differently: do food preferences and dislikes change over time? What are some of the factors influencing this development? Hence, developmental studies are needed in as many aspects of taste as possible to investigate: 1) individual development and differences, and 2) if a response given to a very specific, isolated, stimulus (e.g. a sweet or salty solution),

reflects the individual's response to that stimulus on other foods. Since longitudinal studies are not available, anything said about factors affecting taste preferences and dislikes must be purely speculative at present.

Beauchamp (1981a) discusses the possibility of two interacting factors: the maturing of the peripheral and/or central nervous system, and particular taste experiences. The popular, common sense belief regarding sweets is that the more experience one has with sweet substances, the more one eventually becomes 'addicted' to them. Although reliable individual differences appear to exist among both adults and young children (Beauchamp, 1981a), there is no support for the above-mentioned belief. This would also seem to be the case for salt preferences: "there are no experimental studies which have investigated the relationship between early salt intake and subsequent salt preference and intake" (Beauchamp, 1981a, p.424). The possibility of the influence of previous experiences on taste preferences and dislikes seems to be a very plausible one. However, developmental studies are required in order to verify or reject this possibility.

Beauchamp and Maller (1977) review in detail the issues one should be considering when discussing the developmental course of taste preferences and dislikes in children. So, when asking about the role of previous experiences in taste preferences and dislikes, these are the questions which should be investigated in turn:

1) Do the preferences and dislikes of individuals extend throughout the individual's lifetime? This first question addresses the issue of change/continuity in individual preferences. The answers can only be sought in detailed longitudinal studies.

2) Do previous intake experiences influence taste preferences? This question addresses the issue of how important, if at all, are previous experiences with certain foods for the later development of preferences and dislikes for these foods.

Moskowitz et al (1975) have conducted a direct experimental study on this question and claim that the answer is affirmative. They found that, in contrast to Indian medical students who do not consume large amounts of sour foods, Indian labourers, who include such foods in their diets, consider citric acid and low concentrations of quinine to be pleasant. This difference in preference might be due to differences in previous experience with sour and bitter tastes. However, it might also be due to differences in taste preferences, possibly genetic in origin, between the two populations. This latter possibility was not investigated.

Desor et al (1975) found that there do exist racial differences in relation to salt and sweet among black and white adolescents; black adolescents prefer more concentrated solutions than white adolescents. Could this

be due to a genetic difference, or to previous intake experiences? Probably the latter, as Greene et al (1975) found very low heritability measures for taste preferences among both monozygotic and dizygotic twins.

Beauchamp (1981b) studied the influence of race (genetic variation) and previous experience (external variation) with sugar, on children's preference for sweets. He concluded that "by six months of age, two apparently independent factors -race and feeding history- are associated with differences in sweetness preferences". As far as the aims of the present thesis are concerned, the most important conclusion from this research is that neonatal preference does <u>not</u> necessarily predict preference at six months. Could it be that early feeding practices influence the development (or lack of it) of the 'sweet tooth'?

Cross-cultural studies using similar methodologies to the ones mentioned above would seem particularly useful in addressing the issues highlighted by this research tradition. Many more are required in order for more positive claims to be made. They would enlighten our understanding of the etiology of food preferences and dislikes by clarifying the respective influences of previous experience and genetic factors as well as their interaction(s) on their development (Beauchamp and Maller, 1977).

3) Are experiences very early in life especially important for influencing later taste preferences?

As mentioned previously, the popular belief is that early experience with certain tastes "predisposes children to become addicted to these substances" (Beauchamp and Maller, 1977, p.298). However, as far as the preference for sweetness is concerned, it has been demonstrated that this "is inherent in the species rather than acquired" (Beauchamp and Maller, 1977, p.299). Since longitudinal studies are not available, the question of whether early experiences enhance or inhibit this 'innate preference' cannot be answered.

As far as the child's reaction to NaCl is concerned, work by Maller and Desor (1973), Desor et al (1973) and Beauchamp (unpublished manuscript - cited in Beauchamp and Maller, 1977) mentioned earlier, points to a shift in preference between 6 months (when the child's reaction is indifferent) and 1:6 to 3 years (when NaCl solutions are rejected). But what about the positive reaction of children of this age to salt on food mentioned above? Could it be that this differentiation is influenced by previous intake experiences? Further research is needed to clarify these issues.

4) Do cognitive and social factors influence taste preferences?

As far as specific preferences are concerned, no research is available to our knowledge. Duncker (1938) showed that these influences do affect preferences, but it is not clear to what extent, if at all, the actual preferences were altered. Within this context, Rozin (1979) underlines the importance of making the theoretical distinction between "preference" and "liking". "Although preference is usually taken to imply 'liking', it need not. Preference can reveal a liking relation, or can represent an instrumental relation between the preferred food and some desired goal. In short, liking is only one of a number of determinants of preference". It is felt that this distinction is a very important one. It underlines a very significant and often quite subtle function of food, namely that it can be used instrumentally. In fact there is evidence to reinforce the observation that caretakers DO use food in this manner: highly liked foods tend to be offered as rewards and withheld as punishment (Eppright, Fox, Fryer, Lamkin, and Vivian, 1969).

To summarise then, although the above studies suggest the possibility that previous intake experiences affect later preferences, their results are far from being conclusive. More research, especially longitudinal, is needed to determine both the parameters of these effects and the mechanisms which mediate them.

In view of the suggestion of Beauchamp and Maller (1977) that cross-cultural research might help in

disentangling the effects of heredity and environment on the development of food preferences and dislikes, a brief mention will be made of the literature on food habits within the context of cross-cultural work.

Most studies are anthropological and discuss how feeding habits change and how they are influenced by specific cultural settings (Bavly, 1966; Wenkam and Wolff, 1970; Hindley et al, 1965). Others are more clinically oriented and investigate how changing eating habits affect health and growth (Muto et al, 1969; Jelliffe, 1962). Much more research could be cited, but this would be beyond the scope of the issues being dealt with in the present thesis. As yet, there is no cross-cultural work that effectively disentangles the influences of heredity and environment on the development of taste preferences.

More recently, a biocultural approach seems to be favoured among researchers, especially again in the field of anthropology. This approach would seem to have a lot to contribute to the understanding of how preferences and dislikes develop in terms of the complex interactions between heredity and environment.

Weiffenbach, Daniel, and Cowart (1980) propose a developmental-ecological framework 'in order to conceptualise how the influences which shape the developing tasting system generate the stimuli which directly impinge upon the appropriate receptor surfaces. To be useful, the

model must also represent the dynamic interaction of the sensory system with its changing environment'. Participating in this "dynamic interaction" they include: a) sensory and physiological mechanisms, b) the individual's psychological functioning, c) the proximate social environment, and d) cultural and historical influences.

The present thesis fully ackowledges and accepts the advantages of cross-cultural research in throwing some light on the influences of heredity, environment and their interaction on the development of food preferences and dislikes. This is definitely one methodological approach that has a lot to offer the study of <u>one aspect</u> of the taste development issue. However, there is <u>another</u> very important aspect that the present thesis will address: namely, the interaction between mothers and their babies during early solid feeding, both from a practical and from a psychological point of view. The focus is on issues relating to the mother, to the child, and to their interaction; in other words on how the social processes involved in feeding management may serve to encourage certain preferences and dislikes. Since this is an uninvestigated field, it was felt necessary to commence with a natural history type study: to <u>observe</u> what actually goes on on a day-to-day basis between mother and child in a specific cultural setting. Hence, the present thesis will be addressing the following Baby-Centred questions: Do children have food preferences and dislikes? What are they? How do they develop over time?

The literature seems to provide quite a lot of information on the preferences of neonates. As far as older babies are concerned, research attention seems to have focused mainly on children from the preschool years onwards. Not until very recently (Birch, 1981) have the preferences of toddlers been considered. As for the even younger group of children -those who are experiencing solid food for the first time- the literature is almost non-existent.

Beal (1957), Guthrie (1966), Harris and Chan (1969), Eppright, Fox, Fryer, Lamkin, Vivian and Fuller (1972), and Auerbach (1978), offer some general information (which will be reviewed in Chapter 4), but focus mainly on broad categories of foods rather than on specific items and provide limited findings. This gap in research interest is particularly surprising since during this weaning period the child is being introduced not only to a wide variety of flavours and textures but also to new eating techniques (eating off a spoon rather than sucking from the breast or from a bottle). The present thesis will try and shed some light on reactions to these new experiences and how they are managed - both by the child and by his mother - in this younger group. No attempt will be made to discuss the details of skill development in relation to early solid feeding (Elliot and Connolly (1974) give a very detailed discussion on the natural history of skill development, although the area has received very little research attention).

## 2.2

## Mother-Centred Issues:

## Mothers' Feeding Practices and Attitudes Towards Feeding

Under this heading will be included both the more practical issues of how mothers actually go about introducing solids to their babies and the more psychological ones of how mothers feel towards and think about this new experience. The focus is on 1) getting an overall picture of how mothers in general approach solid feeding, and 2) trying to identify individual differences among them.

It is generally accepted that mothers interact with their young infants 'as if' they were equal partners in the communicating interaction (Newson, 1979). As Schaffer (1977) points out, "the mother thus allows herself to be paced by the infant. She fills in the pauses between his response bursts, and to do so successfully she needs, of course, sensitivity and an exquisite sense of timing" (p.12). There remains some disagreement among researchers concerning the degree to which the child is actually prepared for social interactions from the start and consequently as to the extent to which the mother initiates and maintains these interactions. Nevertheless, their common belief is that "...the human infant is biologically programmed to emit 'signals'...she(the mother) is equally bound to endow them with social significance" (Newson, 1979, p.208). Hence, the responsibilities for interaction are

shared by both partners involved: "All psychological functions develop in a social context, and the younger the child, the more important it is to regard him as part of a unit which inevitably includes a caretaker as a vital complement to the child's state of immaturity...Development is a joint enterprise involving parents as well as child; the role of BOTH needs to be specified" (Schaffer, 1984, p.11-12). Although researchers agree that mothers perceive -or want to perceive- their infants as active communicators from the start, they do not seem to have studied mothers' own constructions of this tendency. They have not been interested in how these perceptions of the mother about her child affect their subsequent specific interactions. The present research will attempt to highlight the presence of these perceptions and attributions in the specific forum of feeding.

In seeking information on the Mother-Centred issues identified above, three sources of literature may be considered:

1) The literature describing Infant Feeding Practices. This might give some direct information on both the strategies mothers employ during solid feeding and on their perceptions of, and attitudes towards, feeding the baby.
2) The literature on Advice on Feeding/Weaning as well as
3) that on Nutrition Education.

It might be expected that these would give information

on what mothers are advised to do as far as feeding their babies is concerned and how - if at all - they are supported during this new activity. The advice offered reflects the way professionals view early solid feeding; where they place their priorities. This view, to a certain extent, may influence the way mothers themselves approach the feeding issue. However, the literature gives little indication of mothers' strategies as defined in the aims of the present thesis. The need for more descriptive work in this area is once again underlined. Let us briefly examine this literature:

1) The literature on Infant Feeding Practices. As far as the strategies mothers employ are concerned, very little research has been done with regard to early solid feeding. Researchers seem to be interested in either a) studying the specific nutritional quality (intake/chemical composition) of children's diets (Widdowson, 1947; Bransby and Fothergill, 1954; Beal, 1957; Beal, 1961; Guthrie, 1966; Cowell, Maslansky, Grossi, Dash, Kayman and Archer, 1973; Maslansky, Cowell, Carol, Berman, and Grossi, 1974; Black, 1975) or b) the type of solid food (general categories of food eg. fruit, vegetables, cereals, etc.) offered to babies (Widdowson, 1947; Bransby and Fothergill, 1954; Beal, 1957; Epps and Jolley, 1963; Harris and Chan, 1969; Arneil, 1967; Eppright et al, 1972; Cowell et al, 1973; Maslansky et al, 1974; DHSS, 1974; Black, 1975; Martin, 1978; Auerbach, 1978; Harker, Clark, Thorogood and Mann, 1979; Martin and Monk, 1982).

Regarding mothers' feelings and attitudes towards feeding, it might be expected that some insight would be gained from the literature on feeding practices. However, specific descriptions of mothers' perceptions have not been found. This comes as some surprise: contemporary theory of child care assumes that the interaction between mother and child is a two-way affair. Shouldn't it then be interested in demonstrating - even establishing - this feature in everyday interactional settings?

The lack of research interest in this area is more than evident. A few researchers have very briefly and indirectly touched upon the issue of mothers' perceptions of their babies' feeding behaviour - but this is in no case the main aim of their work. (Beal, 1957; Guthrie, 1966; Harris and Chan, 1969; Eppright et al, 1972; Wilkinson and Davies, 1978). These researchers seem to highlight -but not elaborate on- very crucial issues as far as mothers' perceptions of their babies' behaviour are concerned. How does a mother rate her child's appetite? What behavioural indices does she use to make these ratings? How do these ratings affect subsequent interactions with the child? How does the mother perceive the progress of her child's eating habits and behaviours? What does the mother perceive as feeding problems on the part of the child? How do these influence interaction? What cues (from the child or elsewhere) does the mother use when deciding to introduce solids? They have raised questions with potentially very 'rich' consequences to the feeding interaction: the present

research will attempt to investigate them in greater detail.

2) Hints on mothers' perceptions of their children's eating behaviour and how these affect subsequent interactions may be found in the literature giving advice on feeding/weaning. Most of the advice seems to deal with when to introduce what kind of solid food. The advice is typically in a medical framework: what is best for the healthy growth of the child. Little help is given to mothers concerning the management of early feeding: the more 'interactional' aspects of it. If any such help were to be given, however, wouldn't it have to be based at least partly on some knowledge of mothers' perceptions of their children's behaviour in general and his feeding behaviour more specifically? No one would doubt that advice dealing with a specific interaction has to take into consideration all the individuals involved as well as their 'perceptions' of each other. Then one could pursue the issue of how these perceptions influence subsequent interaction. Although the medical and research literature seem to give little consideration to this type of advice, the more popular books on child rearing and development acknowledge its importance much more. Mothers are not only advised about what to do and when, but also about how to go about doing it. Mother and baby are treated as two interacting human beings. The social and practical aspects of their relationship are given almost equal support to the more medically oriented ones (Leach, 1979). It is beyond the scope of the present thesis to discuss in detail the suggestions offered in the popular

literature. Nevertheless, the need for well researched and documented work of this kind is fully acknowledged. After all, parents (albeit middle-class parents) are much more likely to read a popular book than a research paper. Hence, one of the goals of research -including the present thesis- should be to offer facts and knowledge based on the real life experiences of parents and their children.

3) In the literature on Nutrition Education the focus, once again, has been on the importance of education strictly related to nutritional, rather than interactional, issues. The possible relevance of 'social' contributions to nutrition has been completely ignored.

Since the information available on this more psychological issue of the relationship between a mother's perceptions of her child's behaviour and further interactions of the dyad is so scarce, the main aim of the present research as far as this issue is concerned is to convey an impression of the scope and variety of these perceptions.

After considering both the more practical issue of how mothers go about introducing solids to their babies diets and the more psychological issue of how these practices and strategies are influenced by the mother's perceptions of her child's behaviour, a more general psychological issue will also be addressed: how does feeding fit in the general context of development? Two questions will be considered in

relation to this issue:

1) Do mothers perceive any relationship between the child's eating patterns and his general personality/temperament? and

2) To what extent is feeding seen as an occasion for social interaction, as well as nurturance?

There was no information at all in the literature surveyed that offered any hints or insights as to the answers of the above questions. However, it was felt that they could well be of great importance. Does behaviour during feeding reflect anything of the child's overall personality? Might a "difficult" child be difficult in all aspects of his development? Or is behaviour during feeding independent of behaviour in other settings? If the answer to these questions is affirmative, could we identify '<u>styles</u>' in children's feeding behaviour? What might some of the characteristics of these 'styles' be?

As far as considering feeding as a routine activity or not is concerned, could it be that the mothers for whom feeding is an easygoing activity are those who also consider it more of a routine? But again, it could be that the mothers for whom feeding is easy are more willing to make more of a social occasion out of it. The issue of individual differences in mother-child interaction styles seems to underlie the answers to these questions. The present research will try to throw some light on these

issues, describing the experiences and perceptions of the mothers who participated in the study.

2.3

## Dyad-Centred Issues

As was mentioned earlier, researchers in the area of child development acknowledge the importance of studying development within the contexts in which it naturally occurs. The developing child is studied in those day-to-day interactions with his environment. Such interactions, especially the caretaking ones, might seem 'trivial' to an outsider. However, when one accepts them as the contexts of development, as the background which actually gives meaning to these interactions, then their psychological importance becomes apparent.

Early feeding is certainly one of these everyday settings. However, very little research attention has been given to the interaction between mother and child during the period when solid food is introduced to the child's diet. There seem to be two very important reasons why a psychologist would want to study this period: 1) for the practical reason of helping mothers and children who have feeding problems, and 2) for the more theoretical reason of contributing to the understanding of the nature of early social interaction and social development. In relation to this latter reason, the present thesis will address two

issues:

A) How, if at all, can early feeding provide a forum for learning about dialogue and, more generally, for the structuring of experience? How important, if at all, could mother's sensitivity to the child's cues be in the smoothness of the interaction?

B) Can a list of specific dyad characteristics be drawn up that would enable the identification of dyad styles? If so, can anything be said about how these styles change over time?

Let us now elaborate on these issues:

2.3.1

## Feeding as a Forum for Social Interaction between Mother and Child

It has already been pointed out that many researchers in child development and, in particular, socialisation, have studied various aspects of development within the context of mother-child interaction. It is within this context that the child learns how to structure interactions in time and eventually to become an active and competent participant in communicating with his environment.

Consider some of the lessons the child might learn by participating in these early interactions. It is generally

accepted among researchers in the area that mothers can be very sensitive to their baby's rhythms; that they may use these rhythms as cues for how to organise their own behaviour. Thus, they develop and maintain an interaction -a dialogue- between the baby and themselves. With the experience of this "lesson" a baby may learn 1) to expect certain behaviours to occur as predictable elements of an interaction, and 2) that his own behaviour 'matters'; that it is of consequence to the interaction. Moreover, time itself begins to 'make sense' for him as the background against which activities occur. The work of researchers in the area of social cognition has not been included in this review. The primary aim of this thesis is to demonstrate and describe the dimensions that exist in feeding, how they change, and what contributions this knowledge may make to the practical understanding of smooth feeding. This kind of data could bear on social cognition issues (intersubjectivity) - issues that belong to a different and wider theoretical context.

Brazelton et al (1974) discuss this process with reference to visual attention. They describe interactions as rhythmic, as composed of cycles of attention/non-attention. Initiating and maintaining this interaction depends in the first instance on the mother's sensitivity to her infant's own rhythms, "to his capacity for attention and need for withdrawal" (p.59). Very soon, through episodes of mutual learning, the dyad will develop a style of interaction which is more or less predictable for

both parties. This will have been initiated by the baby's internal rhythm coupled with the mother's willingness and intention to respond to it. Eventually, it will develop into a true reciprocal activity.

Stern (1977), in describing early play interactions between mother and child, stresses how important it is for the child to experience "a sufficiently predictable stimulus world from which to draw expectancies" (p.90). The assumption is made that the nervous system of the infant is equipped with "some fairly impressive time estimating operation" (p.102). However, it is only through interaction with an adult who is both sensitive and willing to communicate that the initial potential (of the time estimating operation) gradually realises itself in a mature form.

Learning how to structure interactions within time might reasonably be considered one of the most important lessons for the developing child. By gradually becoming aware of the role of reciprocity in social interactions and actually incorporating it in his own behaviour, he is learning one of the most fundamental lessons of social interaction.

Another very important lesson the child learns during these early interactions concerns the meanings in language. Long before they can use language themselves, babies learn to understand some of its meaning and rules. Mothers set up

verbal interactions in a variety of joint activities. Collis (1977) studied visual co-orientation between mother and child to objects. Using microanalytic techniques to study both the establishment of this co-orientation and how it is used to enrich the interaction, he found that it was the mother's attention that was guided by the child's and not vice versa. Furthermore, mothers used this context of shared interaction as an opportunity to name specific objects of attention and generally to build up a session of verbal interaction around them. Collis uses this as an example of how information about the meaning of language can be acquired before it is actually used by children. Language, after all, is a means of communication. Words fulfill no function on their own, and "there is every reason to believe that the rules and meaning of speech are not discovered solely on the basis of evidence from the auditory environment"(p.374).

Within the same stream of thought, Bruner (1977) points out that "the action seen in play between a mother and her child serves a pragmatic function and that such rule-bound sequences as we find in Give and Take provide a solid basis for language to enter the routine and, eventually, for language to become the 'carrier' of the action" (p.287).

The examples mentioned above are only a few from a vast quantity of research that indicates how rich early social interactions can be for the developing child. Hence, it underlines their potential in influencing social

development. This importance is reflected in many areas in which development occurs. The child "learns how to be social". Through the initial guidance and stimulation provided by his caretakers, he gradually becomes a competent "communicator", an active and equal participant in social interactions. This process is a very long one and a lot of useful information is acquired "on the way". In fact, it is this process that contemporary psychology is more interested in; not simply the end product. As mentioned previously, the current focus of researchers in the area of child development is the study of specific aspects of development within the everyday contexts in which these occur. This is in tune with the more general concern to investigate the "processes underlying the formation of social relationships" (Schaffer,1977, p.6).

Let us now turn to the main strategy of the present research which is the descriptive study of mothers and babies during feeding. How can this topic be related to the theoretical issues mentioned above? In other words, could the smooth management of feeding contribute more generally to the course of development?

It is strongly felt that the answer to this question is YES. The studies mentioned above, and which refer to the social and cognitive development of the child, draw their conclusions from observing and studying mothers and their babies interacting in everyday settings. The feeding situation seems to provide an ideal circumstance for rich

interaction to take place. It is an everyday, repetitive activity, and hence facilitates the child's temporal structuring of the world. Due to the fact that it is a more or less organised activity with set goals and rules, it provides a framework, a specific context, within which the child can structure, comprehend, and relate the diverse relevant experiences. He has time to make the best possible use of this context because of the repetitiveness and frequency with which it occurs.

Moreover, unlike other interactions, the smooth management of feeding requires the genuine cooperation of the child. It is a time when both partners have to concentrate on and work towards specific goals. Hence, the caretaker makes extra efforts, when necessary, to obtain this cooperation; she possibly insists more in helping the child "learn the rules of the game".

It should be pointed out that although it is strongly believed that feeding can <u>potentially</u> provide a forum for learning for both mother and child, this need not be so in practice. For most mothers and their babies feeding eventually becomes an "easy" routine activity. Perhaps some dyads use it as an occasion for social interaction. Others do not. It may be primarily a matter of the personalities of the partners involved. So, feeding <u>could</u> become more than a sequence of offering and accepting food, especially when that is not an easy affair. But, the number of everyday opportunities for interaction mothers and children

share are sufficient that each dyad could make its own personal (if not conscious) decision as to which one or ones are suitable for more "social" interaction. Feeding provides only one such context.

2.3.2

Dyad Styles

One of the current trends in psychological research is the acknowledgement of vast individual differences both between mothers and their babies. "Interactions, even the earliest, are...two way affairs in which mutual interchange takes place" (Schaffer, 1977, p.5). And in order to attempt to understand these interchanges, one must take into consideration, 1) characteristics of the specific mother, 2) characteristics of the specific child, and, 3) characteristics of the interacting dyad (Martin, 1981).

Having acknowledged these individual differences, it becomes apparent that one can not - or at any rate should not - attempt to isolate one style of mother-child interaction as being 'good', or the optimum for all dyads. Rather, the focus should be on what style seems to suit each particular dyad, which style ensures the practical and psychological wellbeing of the specific dyad. After having described and studied the interactions of various dyads, one should be able to identify certain styles that, although adopted by the dyad, seem to lead to problems in

interaction, and hence are not adaptive. There has been quite a considerable amount of clinical interest in identifying indices of early mother-child interaction that might predict later disturbances (Brazelton et al, 1974). No such work has been carried out with specific relation to interaction during feeding. However, it is felt that, through a detailed study of mother-child interaction in feeding settings, one could gain insights into which styles are adaptable for a specific dyad as well as which dyads haven't been able to develop a style that would lead to its better overall functioning. Hence, from a practical viewpoint, this approach would help mothers and children for whom feeding is not a casual, routine activity. The present research is not aiming to study this latter issue in detail. However, it is hoped to propose a scheme for describing mother-child interaction during early solid feeding and to encourage use of the resulting indices for the identification of specific dyad styles. The styles of specific dyads will be studied here over a period of three and a half months in order to catch any changes that may occur across the early period of feeding.

As far as describing the interaction between mother and child during feeding is concerned, there has been no research interest whatsoever in the communication between mother and child during normal, everyday solid feeding. There seems to be an obvious gap in interest and knowledge in this area which the present research is hoping to help fill. Where the issue of mother-child interaction during

feeding has received attention, it has been in 1) more or less pathological cases, for example in relation to malnutrition (Cravioto,1976), infant marasmus (Pollitt,1973; Ramey, Starr, Pallas, Whitten, and Reed, 1975; Hull,1976), anorexia nervosa (Burch, 1974), and obesity (Burch, 1974; Olson, Pringle, and Schoenwetter, 1976), and 2) in relation only to early milk feeding (Ainsworth and Bell, 1969; Dunn and Richards, 1977; Kaye, 1977; Crow, 1977). The point to be kept in mind from the former research tradition in relation to the present thesis is that interactions between the child and his social environment are acknowledged as playing a vital role in the development and progress of these problems. Ramey et al (1975) stress that "both the quality of nutrition and the opportunity to receive increased response-contingent stimulation in a social context contribute significantly to the remediation of developmental retardation associated with the maternal deprivation syndrome" (p.52). Pollitt (1973) comments: "...the role of the host (of illness and/or anorexia) has had far less consideration than environment in analysis of causality of severe malnutrition" (p.268). Along these lines, let it be added that even less research attention has been given to the role of the 'host' in normal, everyday feeding interactions. This probably explains why there has been an equally limited amount of interest in how the role of this 'host', of the baby, is perceived by the mother and in how these perceptions influence and are influenced by the overall progress of the interaction.

There has been considerable interest among psychologists in the area of mother-child interaction during early milk feeding. Part of the research to be reported in the present thesis has been guided by and will elaborate on three such studies - studies which are both methodologically and theoretically 'closer' to its own interests.

Ainsworth and Bell(1969) provide a very detailed study on 'Some Contemporary Patterns of Mother-Child Interaction in the Feeding Situation'. It is one of the only reports that actually deals with the 'give and take', the style, variety and classification of the communication between mother and baby during early (milk) feeding. The observations of Ainsworth and Bell are very detailed and thorough. Their descriptions of the various styles of feeding interaction are very clear and offer an integrated picture of the sessions.

Dunn and Richards (1977) report a six-year follow-up study in which they "describe early interactions between mothers and their babies and look for continuities in both individual differences in children and in interaction patterns from birth to five years" (p.427). One of the many issues they were interested in was the patterning of mother and child behaviour during early (milk) feeding. A very interesting point they make has to do with changes in mothers' behaviour over the first 10 days of the baby's life: there seems to be a "rapid increase in coordination

and adaptation" (p.452) demonstrated in the interaction measures during this early period - a period when the mother and the child are actually beginning to 'get to know each other'.

Kaye (1977) gives another very detailed description of mothers and babies interacting during early milk feeding. He points out that these interactions constitute "the earliest example of infants and mothers learning to give and take turns" (p.115). He uses very sophisticated direct recording procedures and is more interested in describing interactions across dyads.

The methodological approaches of the above studies will be discussed in detail in parallel to the methodological approaches of the present thesis. For the moment suffice it to say that these studies have offered many insights on mother-child interaction during the earliest period of feeding. However, the present thesis will be taking their research one step further by applying comparable approaches to the period of solids.

## 2.4

## Summary

This chapter began with an outline of the psychological issues relating to early solid feeding which the present thesis has set out to explore, and continued with a review

of the relevant literature.

The main partners involved in early solid feeding are the mother and her baby. Hence, the focus will be on how each partner separately (Mother- and Baby-Centred Issues) and both together (Dyad-Centred Issues) manage the experiences involved in this new joint task.

From the Baby's point of view, the interest is primarily on the motivational aspects of eating: on the nature and development of babies' food preferences and dislikes.

As far as the Mother is concerned, the aim is to gain some understanding of the strategies employed in introducing the baby to solid feeding. In addition, the more psychological issue of maternal attitudes to feeding as well as perceptions of the baby's feeding behaviour will be highlighted. The nature and development of these strategies, perceptions, and attitudes will be investigated. Feeding is a two-way affair between mothers and their babies. The two partners are interacting in the context of a joint task. From the point of view of the Dyad, the focus of the present thesis will be on the nature and development of this behavioural interaction.

The literature offers very little information on the three issues outlined above. The period when solid foods are being introduced to children's diets has not been a

topic of great interest to researchers.

There is a large amount of research on the preferences and dislikes of neonates in relation to the four 'basic' tastes. This work has no doubt been very influential not only from the practical aspect of its specific findings, but also from a methodological and theoretical viewpoint: new sophisticated methods have been devised to explore the "rich" world of the neonate.

As far as Mother-Centred issues are concerned, research interest has focused on the nutritional quality of the foods mothers offer their baby. When solid foods are mentioned, they are discussed in terms of general categories of foods rather than in terms of specific food items. As far as the more psychological aspects of mothers' attitudes and perceptions to solid feeding and to the feeding behaviour of their baby are concerned, previous research has briefly highlighted some very important issues which the present thesis will elaborate on in detail. One can conclude that the research available has <u>in general</u> ignored the possibility of there being a 'social' element in nutrition.

In recent years, psychologists have shown great interest in studying the interaction between Mothers and their Babies in a variety of everyday settings. These settings are generally ackowledged as being a very "rich" context within which early development takes place. Within this tradition, the only work on feeding available refers to early milk feeding.

Despite the shortcomings of the literature available on early feeding with regard to the aims of the present thesis, it has nevertheless provided the initial background from which both the interest in studying early solid feeding as well as the methods employed in this study have evolved.

## Chapter Three

## Methodological Approaches of the Present Thesis

It has been stated previously that the present thesis will be studying the management of early solid feeding from the point of view of the Baby, the Mother, and the Dyad. The aim is to provide a psychologically oriented picture of early solid feeding. Hence, the focus will be on: 1) how the Baby reacts to new foods in specific, and to eating more generally; 2) the feeding practices and strategies of the Mother, as well as her attitudes and feelings concerning this new experience; and, 3) the development of the moment-to-moment interaction of the Dyad.

It has also been stressed that the distinction between Baby-, Mother-, and Dyad-Centred Issues is only being made for pragmatic reasons. By no means is a strong psychological distinction implied. If one could visualise an imaginary 'continuum' of the "participants" in early solid feeding looking something like this:

Baby -> Dyad <- Mother

then it would seem reasonable to expect certain issues to be located more towards one area of the continuum than another. The Baby enters the Interaction (Dyad) equipped with a degree of physiological preadaptation that enables him to make sensory distinctions and hence have sensory preferences, and with social preadaptation that enables him to participate in social encounters even from the early days of life. The Mother's contribution to the Interaction is

both practical and psychological: she brings her practices and strategies as well as her attitudes, perceptions, and feelings. Once both Mother and Baby become involved in the joint activity of feeding, the bahaviour of each modifies, and is modified by, the Interaction. Hence, when discussing issues relating to early solid feeding, both the "individual" level of analysis (Mother- and Baby- related issues) and the "dyadic" level (the Interaction) ought to be incorporated.

Once the decision has been made to approach the study of these three sets of issues separately, the next step is to choose appropriate methods to proceed with their study. Since the issues that will be dealt with are qualitatively so diverse, the best methods employed to investigate them are likely to be different as well. The question to be asked is which method best serves the study of each specific issue.

The present thesis will be employing three approaches in the study of early solid feeding: a Diary Study, an Interview Study, and a Microanalytic Study.

Solid Feeding: A Diary Study. This study involves the use of day by day records that mothers keep of the food offered to the baby at every meal over a period of three months. These self-report records include both 'objective' and 'subjective' information. Hence, details of the specific kinds of food the baby is given as well as ratings of his

reactions both to specific courses and to entire meals will be obtained. In addition, mothers will be encouraged to comment freely on their feeding experiences.

Solid Feeding in the Second Year: Interviews with Mothers. In this study, three semi-structured interviews with mothers at 6-monthly intervals after the completion of the Diary will be conducted. The aims are to 1) follow-up the progress of early solid feeding into the child's second year, and 2) give mothers the opportunity to express their attitudes and feelings about the baby's feeding patterns and behaviour.

Solid Feeding: A Microanalytic Study. In this study, microananlytic techniques will be employed for the study of the moment-to-moment interaction between Mother and Baby during their early solid feeding sessions. Videotapes of these sessions will be coded and subsequently analysed to reveal the temporal sequencing of the interaction. Let us now very briefly summarise the aims of each of these studies in relation to those of the present thesis as a whole and identify the use of the methods to be employed in the already existing feeding and/or psychological literature.

One of the aims of the present thesis is to obtain a large amount of detailed and reliable descriptive information on what actually goes on between mother and baby during early solid feeding, both in terms of 'routine' matters and in terms of more social/psychological ones. It

is only after obtaining "intimate knowledge of the interaction to be explained" (Cairns, 1979, p.198), that one can proceed to ask specific 'relevant' questions and decide on how to approach their investigation. It is apparent from the literature survey reported in the previous chapter that such 'knowledge' in the area of early solid feeding is definitely lacking.

It was felt that the best way to obtain this type of information would be by using some form of dietary record. Dietary records have been employed by a number of researchers studying the nutrient intake/chemical composition of children's diets (Widdowson, 1947; Bransby and Fothergill, 1954; Beal, 1957, Guthrie, 1966; Black, 1975). The maximum period they covered was one week.

The present thesis is interested 1) in the <u>variety</u> of food items offered to children who are beginning to experience solid food as part of their diet as well as in the children's reactions to them, and 2) in how these reactions develop over time.

Another aim of this thesis is to follow up the menu records and study feeding in the second year of life. The issue of stability in the baby's preferences and dislikes during the period of the study will be investigated. In addition, first-hand information from mothers on their attitudes and feelings about feeding as well as their perceptions of the baby's progress will be obtained.

Mothers will be asked whether their strategies, attitudes, and perceptions change over time, and if they do, an attempt will be made to identify the factors affecting this change. It was felt that the best approach to employ in addressing these questions would be to have interviews with the mothers at regular intervals in their homes. The method of inteviewing is widespread in the literature on feeding practices (Beal, 1957; Epps and Joley, 1963; Eppright et al, 1972; DHSS, 1974; Martin, 1975; Auerbach, 1978; Harker et al, 1979; Martin and Monk, 1982). However, 1) the issues discussed cover only a limited range of feeding experiences, and 2) there seems to be a lack of interest in the issue of development and change in feeding practices over time. The present thesis is aiming to fill in these gaps by studying a wide range of feeding experiences and following up their development over two years.

A third aim of the present thesis is to study the moment-to-moment interaction between mother and baby during early feeding. Feeding is considered a social event. Hence, it is strongly felt that the best way to gain some understanding of the social processes involved must be at a 'fine-grained' level. The behaviours that occur during feeding sessions will be investigated in detail, and an attempt will be made to understand how mother and baby manage the session 'working together'.

It was felt that the best way to obtain this kind of information would be using microanalytic techniques. These

techniques have been employed by psychologists studying various aspects of mother-child interaction (Brazelton et al, 1974; Stern, 1977; Collis, 1977; Bruner, 1977). However, mother-child interaction during feeding has only been studied with respect to early milk feeding (Kaye, 1977).

Before focusing in detail on each of these three approaches the present thesis will be employing, it is felt necessary to stress one point. Although three methodological approaches have been applied to the study of early solid feeding, this does <u>not</u> imply that three independent research projects are being carried out. What is implied, and indeed stressed, is that the issues involved in the study of early solid feeding cannot be investigated on one single level of analysis. The focus is on the behaviour of Mother and Baby BOTH as <u>individuals</u> and as an <u>interacting dyad</u>. Hence, the methods employed to study their behaviour must be <u>appropriate</u> to the specific level of analysis required for each specific research question investigated. "Our procedures...arise from our conviction that analysis at a single level may be seriously misleading and must restrict explanation to the single level chosen" (Richards and Bernal, 1972, p.177). "We are convinced that the understanding of human behaviour will not be advanced by an approach which, having acknowledged its complexity, goes on to attempt to analyse behaviour by recording a very small number of factors at any one time" (p.193-194).

In this chapter, the methodological approaches of the present thesis have been briefly outlined. Each of the three following chapters will include a detailed discussion of the research carried out within each one of the three methodological traditions employed. Chapter 4 will be focusing on the Diary Study, Chapter 5 on the Interview Study, and Chapter 6 on the Microanalytic Study.

# Chapter Four

# Solid Feeding: A Diary Study

## 4.1 Introduction

The aim of this study is to accumulate a detailed body of background, descriptive information on the practical, 'routine' issues concerning early solid feeding. Since no study has dealt in depth with solid feeding before, there were no sources from which even simple, baseline, information could be obtained to give an overall picture of how mothers and babies manage this new experience. In this study, the primary interest is in documenting early solid feeding as it is experienced by the infant. This may be achieved through a close account of mothers' apparent strategies with respect to the organisation, timing, and selection of items for feeding. Reactions to these experiences will be documented through mothers' formal ratings of their children's reactions. It is strongly felt that both what mothers offer the baby and how the baby reacts to new food items may play a significant role in determining the smooth course of feeding.

As mentioned before, dietary records have been employed in studies dealing mainly with the chemical composition/nutrient intake of children's diets. The present thesis is not interested in this more nutritional

orientation. However, it was felt that the general methodological approach of these studies as well as some of their findings relating to the feeding of solids have helpful insights to offer the present study. This literature will now be briefly reviewed.

Widdowson (1947) gives a brief summary of research employing dietary records of children's diets from 1882, when such a study was first recorded, to 1935, the year he embarked on his own research.

The main aim of this tradition of research is to describe children's diets in nutritional/chemical terms. Widdowson's own survey shares this aim. It is a very thorough and detailed study based on 1028 children's records (at least 20 boys and 20 girls at each age from 1 to 18 years). The method employed was to weigh the food consumed by each child over a period of one week, and then calculate the chemical composition with the help of food tables. Furthermore, he was interested in identifying the specific kinds of foods children ate as well as sex and age differences in these consumption patterns. He concluded that while for some foods (bread, meat, potatoes, and sugar) the consumption increased until the children were 15 years of age, for others (biscuits, cheese, fruit, and green vegetables) it remained more or less stable across ages. In a more 'social' context, he studied the diets of, 1) children in various localities, 2) boarding school children (and also compared the diets of public schoolboys at home

and at school), 3) children eating school meals, 4) vegetarian children, 5) twins, 6) diabetic children (and also compared their diets with those of healthy children), and 7) diets of children of unemployed fathers (and compared them with those of middle-class children).

His overall conclusion "is that similar individuals may differ enormously and unpredictably in their food habits. This applies...to the energy value of diets...and is still more true for the foods themselves. These extraordinary departures from the average are compatible with normal physical development. These findings indicate that...an average intake...should never be used to assess an individual's requirement" (p.178).

Widdowson's study is impressive both in precision and in the range of indices of children's eating patterns he studies. However, the period when solids are introduced to children's diets receives no attention at all.

Bransby and Fothergill (1954) collected 1-week dietary records from 461 children aged 6 months to 4 years. Their main aim was to obtain information on the amount of ascorbic acid in children's diets, "but to avoid directing the housewife's attention especially to those foods it was thought better to collect information on the whole diet" (p.195). They offer detailed results on the children's caloric and nutrient intake. In relation to consumption patterns of various food items, they find an increase with

age in average consumption of most foods. In agreement with Widdowson, they comment on the considerable individual differences between the consumption patterns of individual children. As far as the consumption patterns of children who are experiencing solids for the first time in their diets are concerned, Bransby and Fothergill comment that, "...children...not fully weaned...were excluded at the interview stage" (p.195). This is yet another example of a very detailed study employing dietary records. However, its aims do not coincide with those of the present thesis.

Beal (1957) has reported what may be considered a methodologically remarkable longitudinal study carried out by the Child Research Council of the University of Colorado's School of Medicine. They had been studying the nutrition of 57 children during the first five years of life between 1946 and 1955. Nutrition histories were collected at monthly intervals for the first year of life and from then on every three months. "The histories included the time of meals, between meal feeding, ratings of appetite, food likes and dislikes, kind and amount of attention given to the child during meals, amount and frequency of consumption of an inclusive list of foods, and, four 24-hour intakes. In addition, during the period of use of canned baby foods, each mother kept a check list of the number of cans of each type of strained or chopped foods consumed by the infant during the time interval between the histories" (p.448). It is obvious from the list of issues included in these nutrition histories that many are very similar to the

ones the present thesis has set out to investigate using diary records. It was felt that there are two main disadvantages in Beal's nutrition history approach: 1) the possibility of memory distortion in the mothers, and 2) the inability to trace any changes in the feeding patterns of children at the specific point in time that they actually occurred. It was decided that the best way to overcome these problems would be to ask mothers to keep a day-by-day and meal-by-meal record of the more 'routine' matters of early solid feeding (eg. type and kind of food offered to the baby, timing of meals, and the baby's reactions both to specific courses and to entire meals).

Although Beal gives a lot of information on the more nutritional aspects of children's diets, she also offers a more descriptive account of the experiences of early solid feeding. She points out that during the 10-year period her study covered, the introduction of solids to children's diets was occurring progressively earlier. Children's reaction to this was expressed as a greater refusal of solids when first offered. Children participate in family meals at 13 months towards the end of the 10 years whereas the age of transition was initially 2 years. She introduces the concept of "accepting food willingly" and uses as a criterion for this acceptance "willingness to swallow the food without protest within a period of not more than two weeks from the date of its initial offering" (p.450). She concludes that children willingly accept cereals, vegetables, meat and meat soups and fruit at 2.5-3.5, 4-4.5,

5.5-6, and 2.5-3 months respectively. There are two shortcomings of Beal's work in relation to early solid feeding: a) she does not make clear how 'willingness to accept food' is monitored, ie. how often the specific food was offered until it was willingly accepted, and b) she only deals with general categories of foods rather than with specific food items.

The main aim of Guthrie's (1966) research was to study the "effect the addition of other foods to a milk or formula diet had on the total nutritive intake of the infant and the patterns of nutrients in the diet" (p.879). She collected 24-hour dietary records from 50 mothers when the baby was 3, 5, 7, 9, 11 and 13 weeks of age. Once again, the main focus was on the nutritive intake of children. Her main conclusion in this respect is that "the early introduction of solid foods...does not increase the adequacy of the diet before 3 months (p.885)." A very small section of the report refers to mothers' comments on their baby's acceptance of categories of foods.

By collecting dietary records <u>intermittently</u> over a period of 10 weeks, Guthrie makes an attempt to capture the <u>process</u> of early feeding. However, the view of the present thesis is that the only way to do this reliably is by studying dietary records kept <u>continuously</u> for a certain length of time. The optimal length of this time will be discussed shortly.

Black (1975) studied 5-day weighed records on the food consumption of 44 7-8 month old babies in her attempt to obtain quantitative information on infant feeding. Her main focus was on (i) the distribution of the various categories of foods and (ii) the distribution of specific nutrients in children's diets.

She also inteviewed 64 mothers of babies from birth to 18 months in order to obtain longitudinal qualitative information on weaning patterns. Once again, it is the view of the present thesis that this latter information can be best acquired by asking mothers to keep day-by-day records both of the routine and of the more social/psychological aspects of early feedings.

The studies mentioned above employ dietary records to study various aspects of early feeding, especially nutritional. The routine aspects of early solid feedings that the study to be reported in this chapter will be investigating have also been touched upon by studies employing methods other than dietary records, namely interviews. These will be reviewed below.

Harris and Chan (1969) gave a retrospective questionnaire to 383 mothers whose children were between 10 and 25 months of age. Their main aim was to describe their infant feeding practices and then to compare them with medical advice offered to mothers. Although the issue of food preferences and dislikes was not addressed directly,

some very general information is provided on the age of introduction of and preference for various categories of solid food.

Eppright et al (1972) conducted a survey of 2000 households in the United States to study the eating habits of infants and pre-school children. This study will be discussed in detail in the following chapter (Solid Feeding in the Second Year: Interviews with Mothers) as most of the issues it deals with are issues the present thesis will be addressing by employing interviews as well. As far as the issues the Diary Study will be investigating are concerned, some general information is offered on: 1) the ages at which various categories of foods were introduced, and 2) the increase in children's dislike for vegetables (in general) with increasing age.

It has already been stressed that the present thesis will be focusing on the variety of tastes and textures offered to babies as well as the reactions of the babies to them. The method employed will be to ask mothers to keep meal-by-meal records that include these issues. The importance of interviews in gathering data for certain types of studies is acknowledged. However, it is felt that interviews are inadequate for assessing the detailed procedures underlying the development of early preference and dislikes: it is very difficult - even impossible - for mothers to be expected to remember details of specific foods offered to the baby and his reactions to them.

Let us now return to dietary records themselves. In the above section, the 5 studies (to our knowledge) that examine feeding patterns in young children, using such records as their source of data, have been reviewed. The work of Widdowson (1947) and Beal (1957) has been particularly impressive: their methodological approaches were very precise and their studies covered a wide range of feeding indices, both practical and social. However, as far as the present thesis is concerned, the following points have not been covered by the studies reviewed: 1) a description of the diets of children who are just being introduced to solid food, 2) a description of the diets of children in terms of specific tastes/textures (as opposed to nutrient intake/chemical composition), 3) a description of consumption patterns in terms of specific food items (as opposed to general categories of food) and, 4) dietary studies have not extended beyond one week's duration. With respect to this latter point, Widdowson (1947) acknowledged the importance of longer term studies: "clearly a longer period would have been better, but it would have been far more difficult to obtain volunteers if a further week had been demanded of them" (p.20). The task of Widdowson's subjects was to weigh all food consumed, hence his worry of overburdening them. However, the present thesis will be focussing on qualitatively different types of analyses which require longer term data.

The study to be reported in this chapter sets out to address the issue of early solid feeding, elaborating on the

points the research reviewed did not consider. Its aims are to document, a) the structuring of the child's early experiences with solids (mothers' strategies), and b) his observed reactions to this experience. Hence, its focus will be on describing: 1) the variety of flavours and textures experienced by children who are just being introduced to solid food, 2) the children's reactions to these new experiences, and 3) the development of these reactions over time. In addition, mothers will be given the opportunity to include any comments they feel they want to share concerning each feeding session and feeding their baby in general.

It was felt that the best way to obtain this information would be to ask mothers to keep meal-by-meal records of the foods offered to the baby and to monitor and record the baby's reactions both to specific courses and to entire meals. Ideally, a "large" representative sample of mothers would be asked to keep a diary for a "long" time. However, practical limitations of thesis research impose certain constraints on the extent and scale of such a study. Nevertheless, it is strongly felt that much insight can still be gained from a more modest scale study: an "in depth" study on a "modest" size sample. Taking these constraints into consideration, the following decisions were made regarding the size of the sample and the duration of the diary study:

1) A sample of 50 dyads would be large enough to provide reliable descriptive data and small enough to permit

in-depth analysis.

2) Asking the mothers to keep a diary record for 3 months would be adequate to provide a clear picture of the process of the practical aspects of early solid feeding. It was also hoped that it would not be too long to overwhelm and overburden them. The actual co-operation and genuine interest of the mothers who eventually participated in the study dispelled all initial apprehensions over this point.

## 4.2 Method

### 4.2.1 Pilot Study

A pilot study was conducted in which eight mothers (contacted through Chester-le-Street Health Centre) and their children participated. After an initial meeting during which the purpose of the study was explained, the mothers were asked to keep a diary on the solid food given to the baby for one week, including information on a) the specific kind(s) of food the child had at each meal, b) ratings of the child's reactions to specific courses and to entire meals, and c) mother's personal comments and feelings about each feeding session (see copy in Appendix A.1). An informal discussion concerning the diary (the details of keeping it and the mother's comments about it) was held at the end of the recording week. The aims of this phase were: 1) to test and modify if necessary 'technical' aspects of

the diary, ie. its format (did the information required seem to 'fit' in the available sections?), and 2) to obtain feeback from the mothers concerning a) the diary as such (points they felt were important in feeding that should be included) and b) their general feelings towards keeping a detailed record like this.

4.2.2

Main Study

4.2.2.1

Materials

After the pilot diaries had been collected and studied, the final form was completed (see copy in Appendix A.2). It consisted of: 1) a covering letter explaining to mothers the purpose of the study, 2) a section for general information (child's name, sex, date of birth, method of milk feeding, source(s) influencing the initial introduction of solids), 3) a section explaining the particulars of completing the diary, including an example (Figure 4.1), and 4) the actual diary sheets. Each page provided space for the recording of information relating to meals offered within one week (kind and type of food, ratings of baby's reaction to a) specific courses and b) entire meals, duration of feeding sessions, and mothers' comments). The diary was attached to a clipboard together with a pen in order to make it more appealing and convenient for the mothers to handle. Each diary consisted of 15 weekly sheets as it was hoped that

When filling in the diary form, please indicate:

"MENU" a) The various kinds of food the baby had at each meal, including in brackets: 1) The type of food,

| | |
|---|---|
| Packet baby food | P |
| Jar baby food | J |
| Homemade food | H |

and 2) whether the baby seemed to like it

| | |
|---|---|
| very much | ++ |
| quite a lot | + |
| was indifferent | 0 |
| not very much | - |
| not at all | -- |

"Baby enjoyed meal" b) Whether baby enjoyed the whole feeding

| | |
|---|---|
| very much | ++ |
| quite a lot | + |
| was indifferent | 0 |
| not very much | - |
| not at all | -- |

"Feeding time" c) Just roughly, how long did feeding take not counting chance breaks (eg. telephone calls, visitors, etc.)

"Comments" d) Any of your own comments and feelings concerning how the feed went, baby's reactions, etc.

Example:

| DAY | DATE | MEALS | MENU | BABY ENJOYED MEAL? | FEEDING TIME | COMMENTS |
|---|---|---|---|---|---|---|
| Monday | 14-4 | 1 | milk | | | Today was the 2nd morning I tried giving |
| | | 2 | cereal (P, --), scrambled egg (H, +) | + | 20' | cereal. Baby completely refused. |
| | | 3 | beef and vegetable dinner (P, 0) | 0 | 10' | Although baby does eat savouries, I think he |
| | | 4 | fruit desert (J, ++) | ++ | 5' | is more interested in sweets. |
| | | 5 | milk. | | | |
| Tuesday | 15-4 | 1 | milk | | | Since he does not like cereal, I feel I |
| | | 2 | cereal (P, --), grilled bacon breakfast (P, +) | + | 20' | am running out of breakfast ideas (he |
| | | 3 | soup (H, +), banana desert (P, ++) | + | 15' | cannot have an egg everyday at this age) / |
| | | 4 | Lamb and vegetable dinner (P, 0), orange desert (P, +) | + | 15' | He has been waking up at night hungry |
| | | 5 | | | | so I have increased his solids. |
| Wenesday | 16-4 | 1 | milk | | | |
| | | 2 | boiled egg (+) | + | 5' | |
| | | 3 | roast beef and turnip (H, 0), sponge pudding (P, +) | + | 15' | |
| | | 4 | chicken soup (tin, --), fruit pudding (P, 0) | - | 25' | Baby sick 5' after meal. I think tin |
| | | 5 | milk | | | soup did not agree with him. |

Figure 4.1 Explanation of How to Complete the Diary, With an Example.

mothers would be able to keep it for 3 months (although they were reassured on several occasions that gaps in their recording of meals or even whole days missed would not seriously affect the importance of what had been already recorded).

4.2.2.2

The Sample

The mothers who participated in the main study were contacted through local health centres (permission to proceed with the study was obtained from the Durham Health Authority Ethical Committee) and can be divided into two groups:

A) Health visitors from three local health centres (Chester-le-Street, Esh-Winning, and Easington) were approached and the purpose of the study explained to them. They were then asked to choose one or two mothers each from their case load. The only restriction on their choice was that the mother must have just had a baby or was expecting one fairly soon. It was suggested that they use their own judgement as to which mother would be likely to have the time and willingness to participate in the study. The need for an otherwise 'random' selection, and especially one not including just articulate, middle-class mothers, was stressed. In some cases it was the health visitor who gave the mother the diary; in others, the researcher. In the former case, the researcher visited the mother soon after

the diary was given out. Forty-one mothers (out of a total of fifty-two) were contacted in this way (6 through Chester-le-Street, 4 through Esh-Winning, and 31 through Easington Health Centre).

B) A leaflet (see copy in Appendix A.3) comprising: a) a letter informing mothers of the general type of work done on child development in the Psychology Department of the University of Durham and inviting them to participate, and b) a pre-paid postage form asking for some general information of the child and his family (name, address, telephone number, date of birth, other siblings, etc.), was distributed to local health centres and left amongst the other literature available to mothers. From the cards received during the period that sampling was done, 11 were chosen that fulfilled one basic requirement: babies had not yet been introduced to solid food.

The total initial sample therefore consisted of 52 dyads (including one mother with twins) representing a cross-section of the Durham socioeconomic structure. Before the three-month period was completed, 9 mothers were excluded from the study: one baby died, one family moved far away, and 7 mothers (13.5%) felt the diary was too time consuming.

4.2.2.3

Procedure

During the first meeting with the mother, the purpose of the diary was explained and any queries discussed. The mother was asked to start filling in the diary from the first day something solid was introduced into the baby's diet, no matter how small the amount was. She was then referred to the instructions in the diary, which were further explained and clarified. Throughout the three-month recording period, mothers were contacted once a month (by visit or by telephone if there was one available) to reassure them of the importance of their contribution and to discuss any questions they might have. When the diary had been completed, a semi-structured interview was conducted with the mother. The questions dealt with 1) the mothers' feeding practices specifically and their family's eating patterns generally, 2) the mothers' perception of their baby's eating behaviour, and 3) more psychological issues relating to the mothers' feelings towards feeding a baby and advice they could offer new mothers through their own experiences.

4.3

## Results and Discussion

4.3.1

### Menu Data

4.3.1.1

### Strategies in Introducing Solids

4.3.1.1.1

### The Dyad Sample

Figure 4.2 shows the timetable for both the Diary and the Interview Study. Table 4.1 gives some general information on the dyads that participated in these two studies.

As a whole, over half the mothers who participated in the Diary Study introduced solids when their baby was three months old. Epps and Joley (1963) report that 76% of the babies in their (American) sample were between 1 and 2 months of age when solids were first introduced. Oates (1973) concludes that "the commonest age for starting solid feeding was between 3 and 4 weeks" (p.762). The report by the Committee on Medical Aspects of Food Policy (DHSS, 1974) recommends 4 to 6 months as the age on or after which solids ought to be introduced. At the time, the practice in the U.K. was to introduce solids before 3 months. In Martin's (1978) survey, almost half the babies had been introduced to solids by 8 weeks and 85% by 3 months. In the 1980 follow-up report (Martin and Monk, 1982), 55% of mothers studied in England and Wales introduced solids by the age of 3 months and 89% by 4 months, compared with the 1975 figures of 85% and 97% respectively. The overall trend seems to be for solids to be introduced later to babies' diets. As far as the sample in the present study is concerned, 28% of the babies were introduced to solids <u>before</u> 3 months, compared to 49% of the 1975 and 24% of the 1980 study, just under half were introduced at around 3 months, and 21% at 4 months. The figures for the percentage of mothers introducing solids <u>by</u> 3 months are between those of the

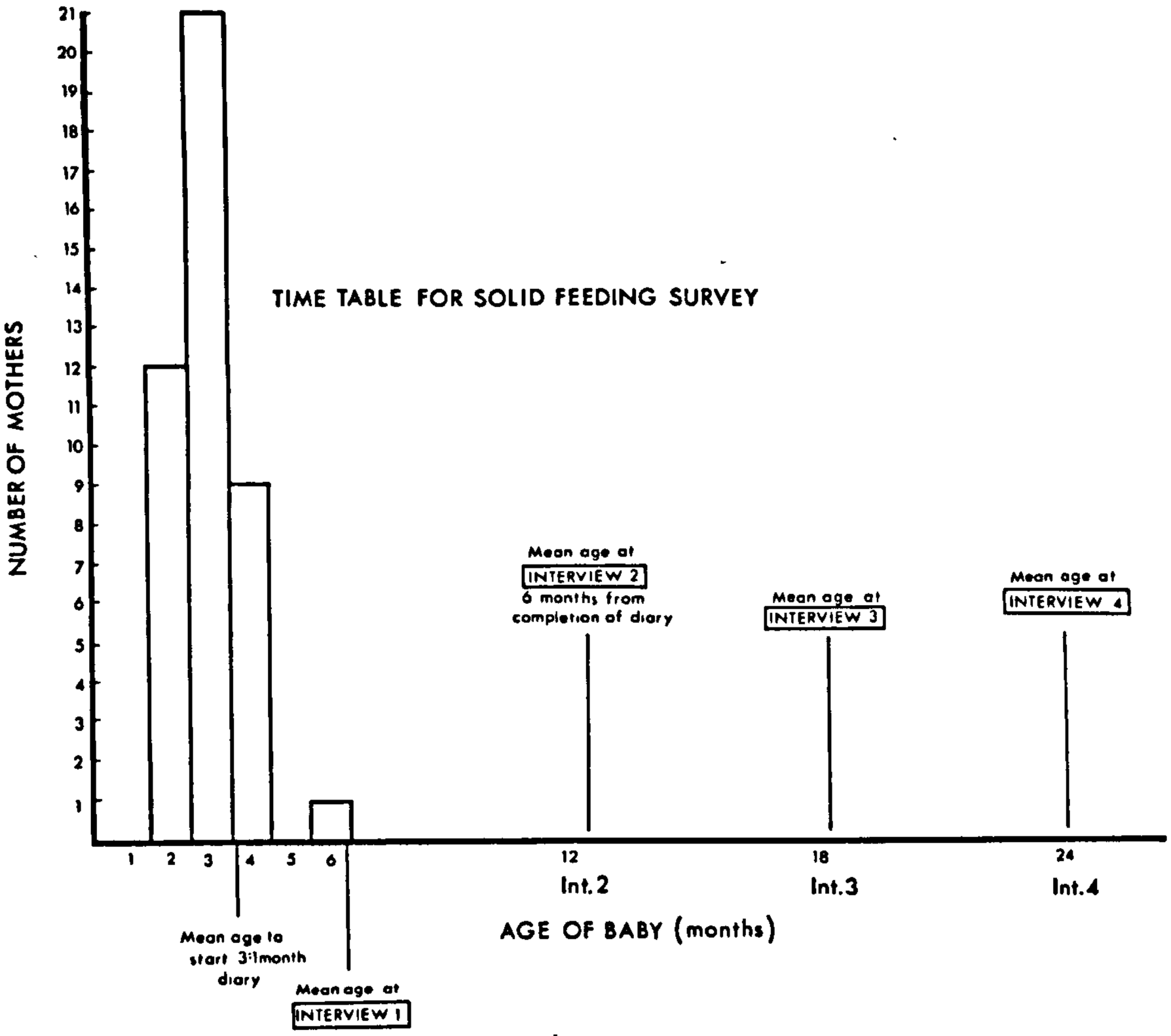


Figure 4.2 Timetable for Diary and Interview Studies.

Table 4.1 General Information on Dyads Participating in the Diary and Interview Studies.

| Subjects | Age at weaning (months) | Method Milk feeding | Siblings sex & age (yrs) | Total Days | Days Completed | INTERVIEWS 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|---|
| 1M | 3 | M | | 59 | 41 | x | x | | |
| 2M | 2 | M | M :3 | 87 | 83 | x | x | x | x |
| 3F | 2 | b | M :4 | 115 | 101 | x | x | x | x |
| 4F | 4 | M | M :2 | 63 | 45 | x | x | x | x |
| 5M | 3:3 | B | | 85 | 78 | x | x | x | x |
| 6F | 3:1 | M | M :6 | 89 | 83 | x | x | x | x |
| 7F | 6 | B | MF :53 | 98 | 98 | x | x | x | x |
| 8M | 4 | B | M :2 | 98 | 98 | x | x | x | x |
| 9F | 2:3 | b | F :3 | 102 | 102 | x | x | x | x |
| 10F | 2:3 | B | F :3 | 71 | 62 | x | x | x | x |
| 11M | 2:2 | B | | 61 | 50 | x | x | | |
| 12M | 3:2 | M | | 98 | 90 | x | x | x | x |
| 13M | 2:3 | B | | 80 | 80 | x | x | x | x |
| 14M | 2 | b | | 80 | 80 | x | x | x | x |
| 15F | 2:1 | M | | 93 | 93 | x | x | x | x |
| 16F | 3:3 | B | F :2 | 45 | 45 | x | x | x | x |
| 17M | 3:1 | b | M :4 | 98 | 98 | x | x | x | x |
| 18M | 2 | b | FF :93 | 98 | 83 | x | x | x | x |
| 19M | 2 | B | M :17 | 104 | 72 | x | x | x | x |
| 20M | 4 | M | MM :54 | 91 | 83 | x | | | |
| 21M | 3 | b | | 85 | 77 | x | x | x | x |
| 22M | 2:1 | M | | 98 | 96 | x | x | x | x |
| 23F | 2:3 | M | M :1 | 92 | 92 | x | x | x | x |
| 24F | 3 | B | MMM:753 | 105 | 100 | x | x | x | x |
| 25M | 3 | M | | 103 | 97 | x | x | x | x |
| 26F | 3 | B | | 36 | 36 | x | x | x | x |
| 27F | 1:1 | M | | 119 | 118 | x | x | | |
| 28M | 3:1 | M | M :8 | 73 | 64 | x | x | x | x |
| 29M | 3:3 | B | F :2 | 89 | 89 | x | x | x | x |
| 30M | 2 | b | F :3 | 91 | 91 | x | x | x | x |
| 31F | 2 | b | | 103 | 103 | x | x | | x |
| 32M | 3:1 | B | M :2 | 98 | 98 | x | x | x | x |
| 33M | 3 | b | FFM:432 | 94 | 67 | x | x | x | x |
| 34M | 2:1 | B | | 91 | 88 | x | x | x | x |
| 35M | 3 | b | M :2 | 93 | 93 | x | | | |
| 36F | 4:1 | b | | 98 | 82 | x | x | x | x |
| 37M | 4 | B | F :2 | 105 | 104 | x | x | x | x |
| 38M | 3:1 | B | | 97 | 86 | x | x | | |
| 39M | 4 | b | | 77 | 77 | x | x | x | x |
| 40M | 3 | B | | 93 | 93 | | x | x | x |
| 41M | 2:1 | M | F :10 | 93 | 93 | | x | x | x |
| 42F | 3 | b | | 93 | 93 | | x | x | x |
| 43M | 3 | M | | 90 | 90 | | x | x | x |
| $\bar{x}$ =3:1 | | | | $\bar{x}$=89.1 | $\bar{y}$=83.5 | $N_1$=39 | $N_2$=41 | $N_3$=36 | $N_4$=37 |

Subjects/Siblings : M = Male, F = Female

Method Milk Feeding : B = breastfed, b = bottlefed, M = both

1975 and 1980 studies (77%). The figure for mothers introducing solids by 4 months is almost identical to that of the 1980 report (98%). Hence, the trend of introducing solids later to children's diets seems to be more or less reflected in the present results.

When the dyads are divided into groups according to the method of milk feeding employed, the mean age at weaning is 13.2 weeks (sd=3.63) for the 16 babies that had been totally breastfed, 11.1 weeks (sd=2.95) for the 13 babies that had been totally bottlefed, and 11.3 weeks (sd=2.99) for the 14 babies who had been both breast- and bottle- fed (In this latter group, 3 babies had been breastfed for 1-3, 4-6, and 15-24 weeks respectively before being changed to the bottle, 1 baby had been breastfed for 8 weeks before the change, and 4 babies had been both breast- and bottle- fed for 4-6 weeks before being totally bottlefed). Thus, mothers who rely on breastfeeding only tend to introduce solids on average 2 weeks later than both other groups. It appears from the literature available on early feeding practices that mothers who breastfeed their babies tend to introduce solids significantly later than those who bottlefeed. In the Wilkinson and Davies (1978) study, the mean age for breastfed babies to be introduced to solids was 13.8 weeks, compared with 7.8 weeks for the bottlefed babies and 9.6 weeks for those who had been both breast- and bottle-fed. Auerbach (1978) reports that "bottlefeeding mothers started solid feeding up to 8 weeks earlier than the majority of the breastfeeding mothers" (p.28). Martin (1978) carried out a

survey on Infant Feeding Practices in England and Wales and once again observes that "the majority of mothers, particularly mothers who bottlefed, introduced solid food to their babies' diets long before the recommended age of 4 months" (p.108). In a follow-up to this survey, Martin and Monk (1982) found a significant relationship between method of early milk feeding and age of introduction of solids. The data obtained by the present study indicates significance at the p=0.10 level for the difference of 13.2 and 11.1 weeks between breast- and bottle-fed babies. Even when dyad 7 (for whom solids were introduced at 6 months - significantly later than for any other dyad) is excluded from the sample, the significance level remains substantially unchanged. This is not as significant as the difference reported in the literature. Nevertheless, one could say that overall, there seems to be a trend for mothers who breastfeed to introduce solids later than mothers who bottlefeed.

4.3.1.1.2

Time Course of Introducing Solids

Before describing in detail the specific indices of early solid feeding that emerged from the diaries, it is felt appropriate to comment once again on the genuine cooperation and interest of the mothers in keeping and completing the diaries. Each mother was given 15 pages, ie. was asked to keep the diary for 15 weeks (105 days). The

mean number of days completed for the sample as a whole was 83.5 days (Table 4.1). Without this conscientious effort on the part of the mothers, it would have been impossible to collect the amount of data this study is based on.

In the following section, the focus will be on four indices of early solid feeding: i) changes in meal duration, ii) changes in frequency of meals, iii) rate of introducing new food items, and iv) some of the earliest solid foods offered to babies.

## Changes in Meal Duration

Figure 4.3 shows, for each of the 43 dyads, the Spearman rank correlations between ordinal week of solid feeding and mean meal duration (the points on each individual graph are the representations of the actual numbers that were correlated - in this case, mean meal duration with ordinal position). The ordering of the dyads is based on the negative correlations that emerged. Kendall's Tau was used as an index of the significance of these correlations. The overall negative correlations suggest that mother and baby 'need more time' during early sessions to manage the new experiences involved in solid feeding. Conversly, as the dyad acquires more practice in solid feeding and hence becomes more 'efficient' in the task of feeding, meal times become shorter.

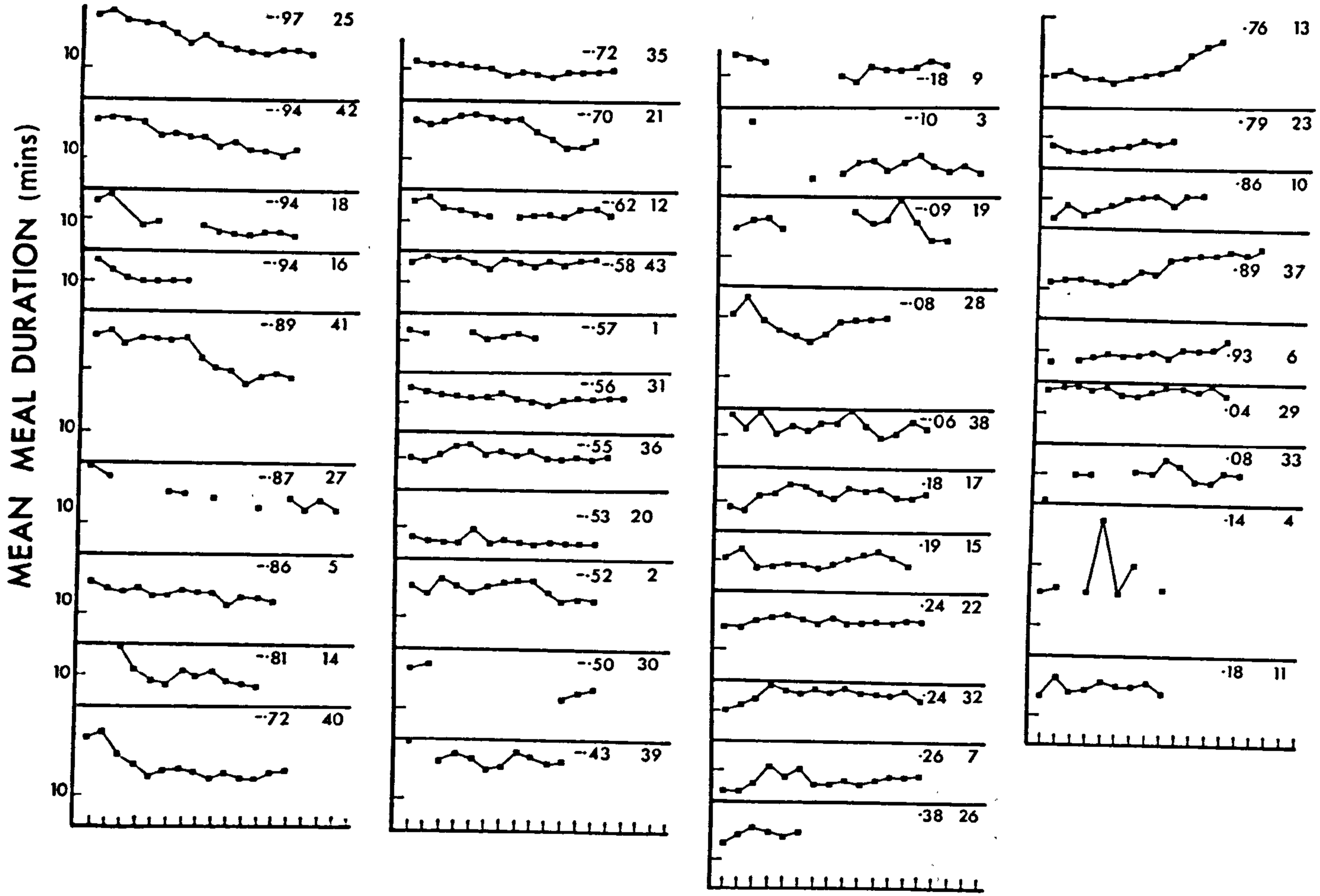


Fig. 4.3 Correlations Between Ordinal Week of Solid Feeding and Mean Meal Duration.

Three dyads have been excluded from the discussion as they involve too many missing values. For 16 of the remaining 40 dyads (numbers 25 to 36 in Figure 4.3), there is a significant negative correlation between ordinal week of solid feeding and mean meal duration: early feeding sessions require 'more time' for their management than subsequent ones. For 5 dyads (numbers 13 to 6 in Figure 4.3), there is a strong positive correlation between the variables involved. For these mothers and their babies, meal time duration increases as the dyad becomes more experienced in early solid feeding. Two inferences might be drawn from this finding: a) meal times could last longer because the baby is offered more food, and b) meal times could last longer because mother and baby make a 'social occasion' out of feeding and are involved in other activities as well (eg. talking, playing, etc.). For 19 dyads (numbers 20-26 and 29-11 in Figure 4.3), there is no significant correlation between the two variables studied: meal time duration does not seem to be influenced by the dyad's experience with solid feeding. One could speculate that three factors compete to keep meal duration more-or-less stable for these dyads: 1) increased experience with solid feeding (hence meal duration becomes shorter), 2) using feeding sessions as a time of being and doing things together, and 3) offering the baby more food as he gets older and more efficient in eating (the latter two factors would contribute to the longer duration of meal times).

An attempt was made to test statistically if there is

an overall trend in the data presented. The nature of the data and the fact that different subjects give data over different numbers of weeks led to the employment of a non-parametric trend analysis (Ferguson, 1965). The results indicate that as mothers and their babies acquire more practice in solid feeding, meal times do, in fact, become shorter ($p<0.01$).

The overall impression from these results is that meal duration tends to stabilise within the period of the study -rather quickly by all reasonable expectations. It is the pattern of this stabilisation that follows a different course for different groups of dyads.

## Changes in Frequency of Meals

Figure 4.4 shows the Spearman rank correlations between ordinal week of solid feeding and frequency of meals for each of the 43 dyads. (the points on each individual graph are the representations of the actual numbers that were correlated - in this case mean number of new food items introduced with ordinal position). The ordering of the dyads is based on the overall positive correlations that emerged. These correlations suggest that as the baby grows older and acquires more familiarity with solid food, he will be offered more solid meals per day. For 25 (numbers 11 to 7 in Figure 4.4) of the 43 dyads the positive correlations were significant (Kendall's Tau). The majority of mothers

offer more solid meals per day as the baby becomes more experienced with solid feeding. For one dyad (number 17) the pattern seems to be reversed. This mother started off by offering her baby 4 solid meals a day for the first two weeks and then dropped to three. In an attempt to understand why this dyad showed a 'different' pattern, the actual diary was studied again. It then became quite clear what this mother was doing: during the first two weeks, she was offering her baby 4 solid meals a day, possibly feeling that 'little and often' is better for him. In subsequent weeks, one solid meal is dropped as a <u>separate</u> meal only to be included as a <u>second course</u> to another meal. And later on, most of both this baby's main meals include two solid food courses. Hence, although the actual number of meals is decreasing, the amount of solids (in terms of courses) is increasing. For the remaining 17 dyads, there seems to be no significant correlation between the two variables involved.

Overall, Figure 4.4 demonstrates that solid feeding seems to become a stable routine fairly quickly: the number of solid meals per day moves towards a more-or-less typical value of between 3 and 4 meals a day within a few weeks.

<u>Rate of Introducing New Food Items</u>

Before discussing the results under this section, it is felt appropriate to make a clarifying point concerning the

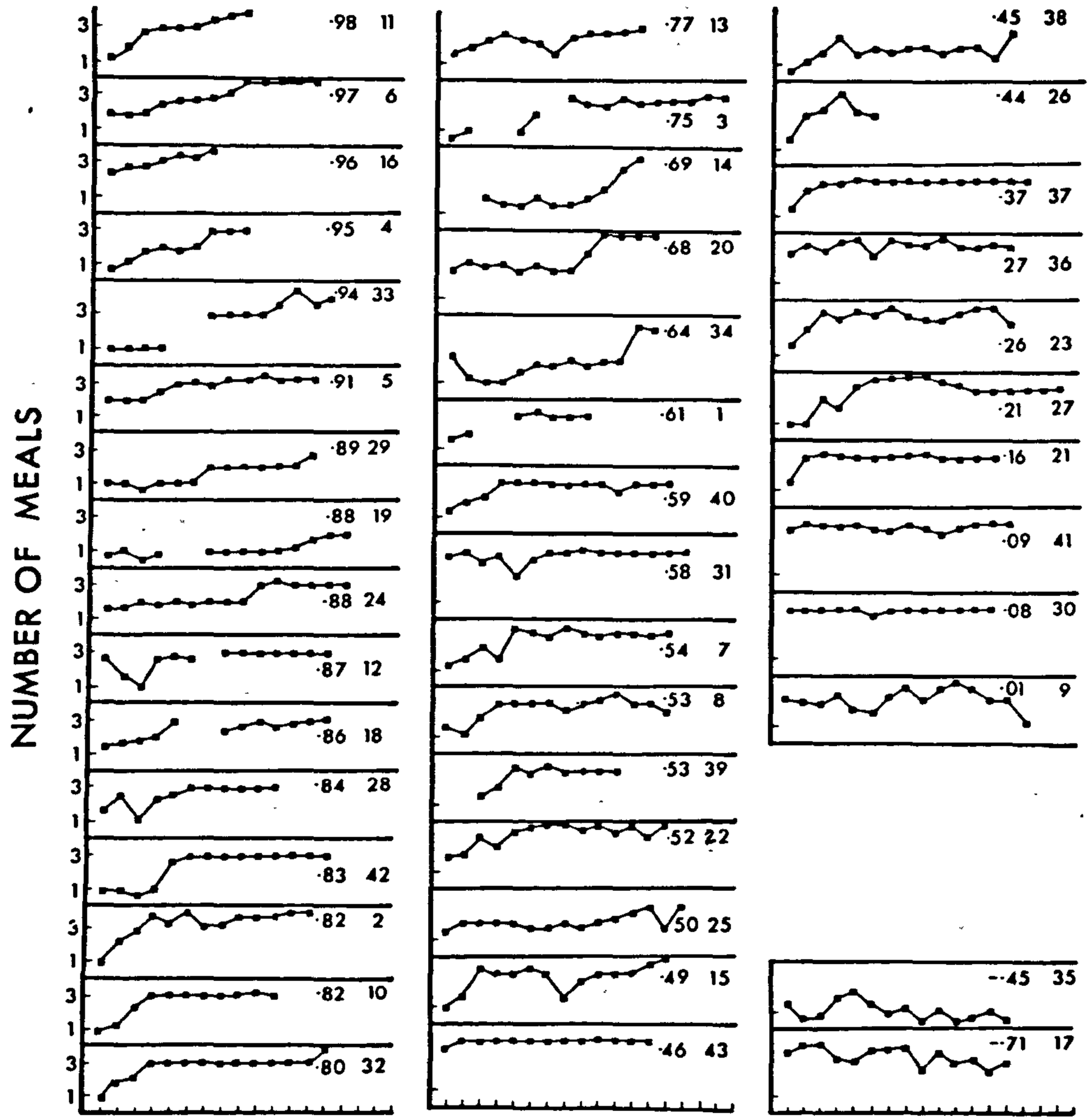


Fig. 4.4 Correlations Between Ordinal Week of Solid Feeding and Frequency of Meals.

actual coding of food items. "Food Items" have been defined so as to distinguish both individual kinds of food (for example potatoes, yogurt, etc) but also to reflect distinct sensory experiences or flavours. Thus, for example, chocolate yogurt has been coded as two items: chocolate and yogurt. Although this coding system has, no doubt, its imperfections, it has the main advantage of reducing the chances of missing the identification of where the significant decisions (mother) or reactions (baby) lie. Table 4.2 gives a listing of the items that emerged from the coding of the diaries.

Figure 4.5 shows, for each individual dyad, the Spearman rank correlations between ordinal week of solid feeding and mean number of new food items introduced (the points on each individual graph are the representations of the actual numbers that were correlated - in this case mean number of new food items introduced with ordinal position). Second-order correlations (Ferguson, 1965) are indicated (*) when they are larger than the corresponding first order ones. The overall negative correlations that emerged suggest that a large variety of food items is introduced to most babies' diets very early on in the solid feeding period. Mothers seem very eager to introduce their baby to a wide range of solids very early on.

There are two kinds of apparent patterns in this data that need to be evaluated. For 10 of the 43 dyads, there is a significant negative correlation (*) between the mean

Table 4.2 Diary Food Item Codes.

Liquids

| | | |
|---|---|---|
| 1. Breast milk | 2. Formula/Cows' milk | 3. Orange |
| 4. Ribena | 5. Blackcurrant | 6. Delrosa/ |
| 7. Drinking chocolate | 8. Tea/coffee | Rosehip syrup |

Cereals

| | | |
|---|---|---|
| 9. Cereal | 10. Porridge/Oats | 11. Rice |
| 13. Bread | 14. Rusk | 15. Muesli |

Meat

| | | |
|---|---|---|
| 19. Bacon | 20. Beef | 21. Chicken |
| 22. Turkey | 23. Lamb | 24. Steak and kidney |
| 25. Ham | 26. Liver | 27. Pork |
| 28. Sausage | 29. Mince | 30. Fish |
| 31. Gravy | 32. 'Sunday dinner' | 33. Shepherd's pie |
| 34. Beef curry | 35. Beefburgers | 36. Corned beef |
| 37. Marmite | 38. Meat pie/Toad-in-the-hole | |
| 39. Dumplings | 40. Yorkshire pudding | |

Vegetables

| | | |
|---|---|---|
| 41. Carrots | 42. Mixed vegetables | 43. Cauliflower |
| 44. Potato | 45. Turnip | 46. Tomatoes |
| 47. Lentils | 48. Onions | 49. Vegetable soup |
| 50. Baked beans | 51. Spaghetti | 52. Celery |
| 53. Egg noodles | 54. Peas | 55. Rice |
| 56. Beans | 57. Melon | |

Dairy Products

| | | |
|---|---|---|
| 58. Egg (boiled) | 59. Egg (scrambled) | 60. Egg (yolk) |
| 61. Cottage cheese | 62. Cheese | 63. Yogurt |
| 64. Egg | 65. Butter | |

Sweets and Fruit

| | | |
|---|---|---|
| 66. Ginger pudding | 67. Cake/Crumble | 68. Semolina |
| 69. Tapioca | 70. Rice | 71. Custard |
| 72. Trifle/Pavlova | 73. Apricots | 74. Prunes |
| 75. Banana | 76. Peaches | 77. Raspberries |
| 78. Apples | 79. Mixed fruit | 80. Pineapple |
| 81. Pears | 82. Oranges | |
| 83. Blackcurrants/Blackberries/Mixed berries | | |
| 84. Angel Delight/Mousse/Blancmange | | 85. Strawberries |
| 86. Cherries/black cherries | | 87. Plums |
| 88. Lemons | 89. Chocolate pudding/Chocolate bar | |
| 90. Cream | 91. Egg custard | |
| 92. Cream caramel dessert | | 93. Honey |
| 94. Biscuits | 95. Jelly | 96. Nuts |
| 97. Ice-cream | 98. Rice pudding/Creamed rice | |
| 99. Sugar | | |

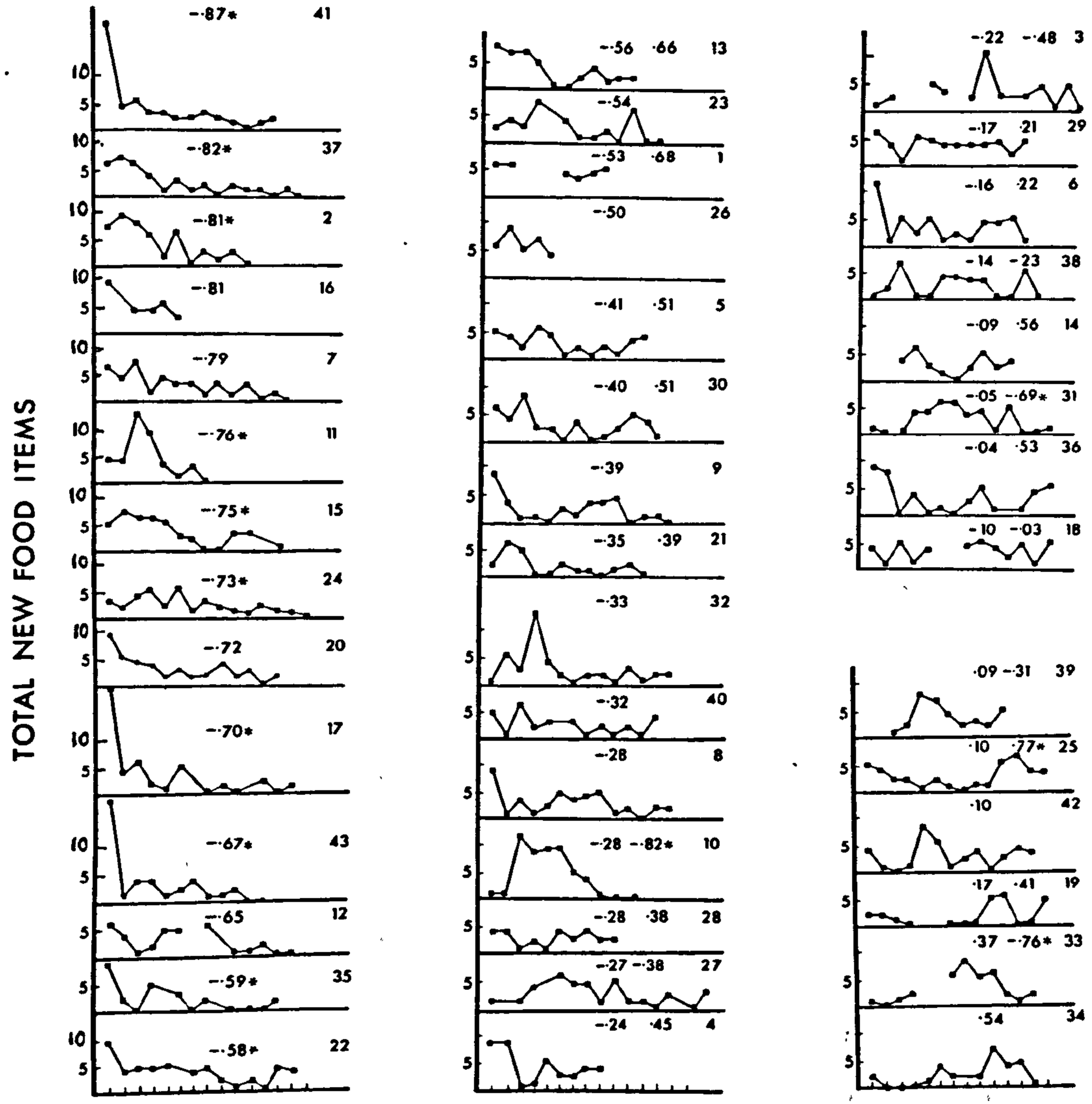


Fig. 4.5 Correlations Between Ordinal Week of Solid Feeding and Mean Number of New Food Items Introduced.

number of new solid food items introduced and successive weeks of solid feeding. During their first week on solid food, most of these babies experience more than five new items. For four dyads (numbers 10, 31, 25, and 33) there is a significant second-order correlation: positive for dyad 25 and negative for the other three. The first-order correlations for these dyads are not significant: there does not appear to be any relationship between the mean number of new food items introduced to the children's diets and successive weeks of solid feeding. However, for dyad 25, from week 8 onwards, the baby seems to be getting an increasing number of new food items per week. As far as dyads 10, 31, and 33 are concerned, there seems to be a turning point at 6, 11, and 8 (or 10?) weeks respectively, during which after introducing a large number of new food items, the number seems to drop drastically in subsequent weeks.

For the remaining dyads, although the correlations are not significant, there nevertheless remains a tendency towards negative correlations. Most mothers seem to offer a wide range of new food items very early on.

## Some of the Earliest Foods Offered to Babies

Having established that, overall, mothers tend to offer their babies a wide range of new food items from very early on, let us focus on what some of these early items

actually are. Table 4.3 shows the frequency of appearance of the food items offered to babies for the first four weeks of the diary.

Over half the babies have tasted egg, custard, banana, and chocolate within the first four weeks of eating solids. Egg is a paricularly interesting case: during the follow-up interviews (Chapter 5), mothers, overall, report that their babies strongly dislike egg. This is a more-or-less consistent dislike (30% in interview 2, 40% in interview 3, and 50% in interview 4). The ratings mothers give to their babies' reactions to egg in the diary will be discussed in the following section. For the moment suffice it to say that 59% of the babies in the sample have tasted egg in some form during the first four diary weeks. Only 6 babies had not been offered egg in any form during the diary period.

4.3.1.2

Responses to Solid Feeding

Having discussed the more general issue of the overall strategies of mothers when introducing solids to their baby, the focus in this section will be on the responses of babies to specific food items and to entire meals (courses). Before discussing the results, a clarifying point will be made in relation to the rating scales mothers were instructed to use. Mothers rated their baby's reactions on a 5-point scale: ++, +, 0, -, -- (baby liked food

Table 4.3 Frequency of First Appearance of Food Items Offered to Babies in the First Four Weeks of the Diary.

| FOOD ITEM | WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 | TOTAL |
|---|---|---|---|---|---|
| Custard | 11 | 6 | 11 | 2 | 30 |
| Banana | 13 | 5 | 6 | 2 | 26 |
| Chocolate | 12 | 4 | 3 | 2 | 21 |
| Tomato | 11 | 3 | 3 | 2 | 19 |
| Liver | 4 | 7 | 4 | 1 | 16 |
| Cheese | 9 | 3 | 2 | 1 | 15 |
| Potato | 7 | 6 | 1 | 1 | 15 |
| 'Egg' | 1 | 3 | 5 | 4 | 13 |
| Egg 'scrambled' | 2 | 3 | 1 | 1 | 7 |
| Egg 'yolk' | 7 | 1 | 1 | 1 | 10 |
| Egg 'boiled' | 2 | 1 | - | 1 | 4 |
| 'Egg' (total) | 12 | 8 | 7 | 7 | 34 |
| Ice-cream | - | 1 | 1 | 3 | 5 |
| Fish | - | 1 | 1 | 2 | 4 |
| Sausage | 1 | 1 | - | - | 2 |
| Egg noodles | - | - | - | 1 | 1 |

item/entire meal very much; quite a lot; was indifferent; not very much; not at all).

4.3.1.2.1

Feeding in General: Meal Ratings Changing Across Time

Figure 4.6 shows the distribution of item ratings mothers used when completing the diary. It is felt appropriate to stress three points in relation to this Figure: 1) the majority of mothers did actually rate their baby's reactions (indicated by the very low proportion of missing values) despite the fact that this might be considered an extra chore, 2) although overall negative ratings are rare, mothers seem willing to use the whole range of ratings, and 3) although the negative ratings are rare in relative terms, they are quite frequent in a few cases (dyads 4, 27, and 36).

Figure 4.7 shows the distribution of the Spearman rank correlations between ordinal week of solid feeding and proportion of negative ratings for entire meals for each dyad (the points on each individual graph are the representations of the actual numbers that were correlated - in this case proportion of negative ratings for entire meals with ordinal position). The negative correlations that emerge indicate that as the baby gains more experience in solid feeding, the overall meal rating becomes more positive. Six mothers (dyads 37, 40, 35, 43, 21, and 8)

Fig. 4.6 Distribution of Item Ratings Mothers Used When Completing the Diary.

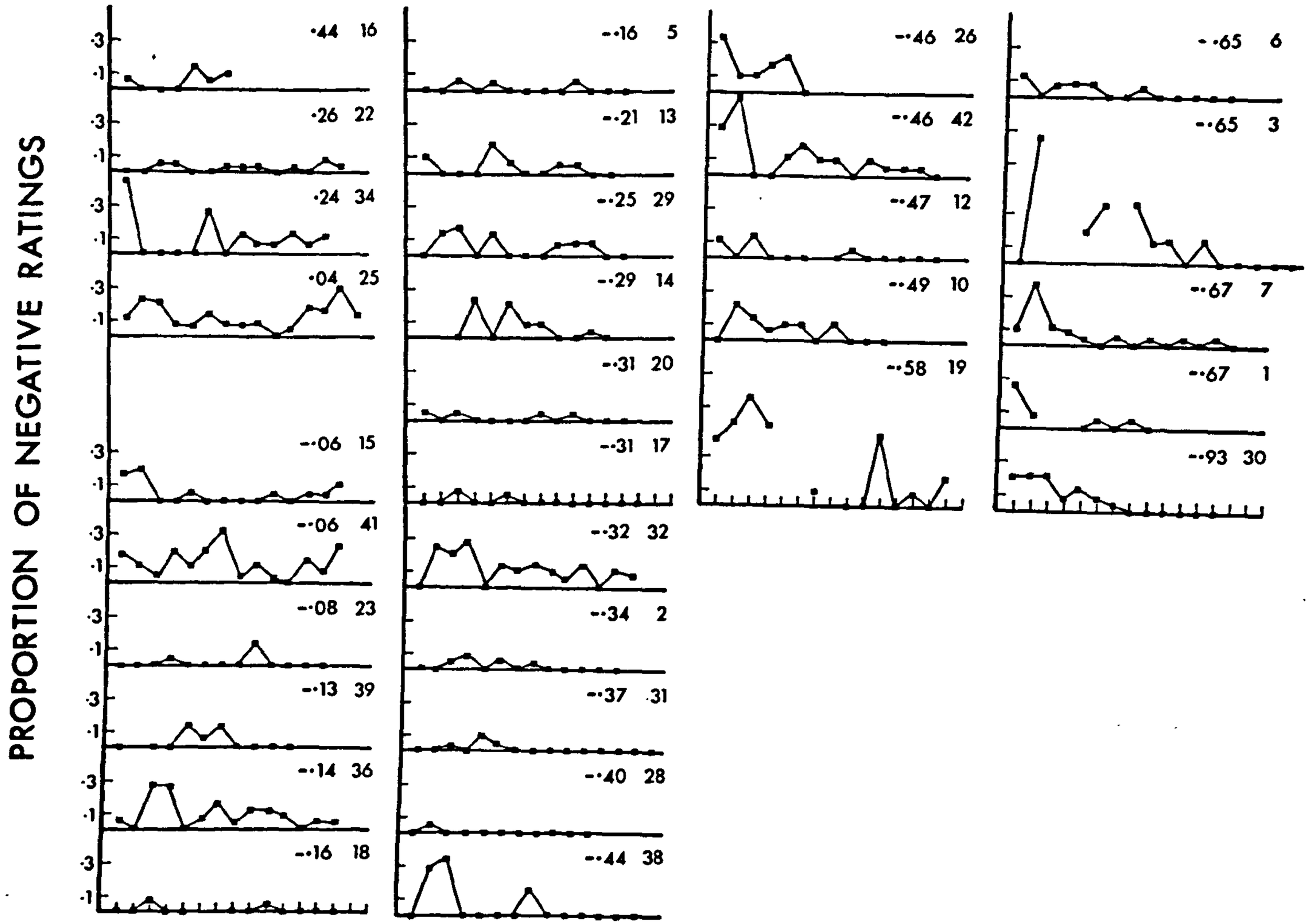


Fig. 4.7 Correlations Between Ordinal Week of Solid Feeding and Proportion of Negative Ratings for Entire Meals.

reported no negative ratings and six others (dyads 24, 11, 27, 33, 4, and 9) had too many missing values. Of the remaining 31, this correlation was highly significant (Kendall's Tau) for 8 (25%) dyads (30, 7, 3, 6, 19, 10, 12, and 42). Hence, the overall impression is that although negative ratings are few in absolute terms, these few decrease in number as solid feeding progresses. Feeds that were difficult to begin with tend to become easier in terms of children's reactions within a period of a month or so (Figure 4.7).

4.3.1.2.2

Particular Foods

Having discussed children's reactions to entire meals and how these change over time, the focus in this section will be on children's reactions to specific food items. The following issues will be addressed: i) What is the variation between children in relation to the frequency of negative ratings? ii) What is the relation of food reactions to the novelty of specific food items? and iii) A report on the distribution of food items for individual dyads.

Variation Between Children Re. Distribution of Food Item Ratings Over Time

For each individual dyad, Figure 4.8 shows the

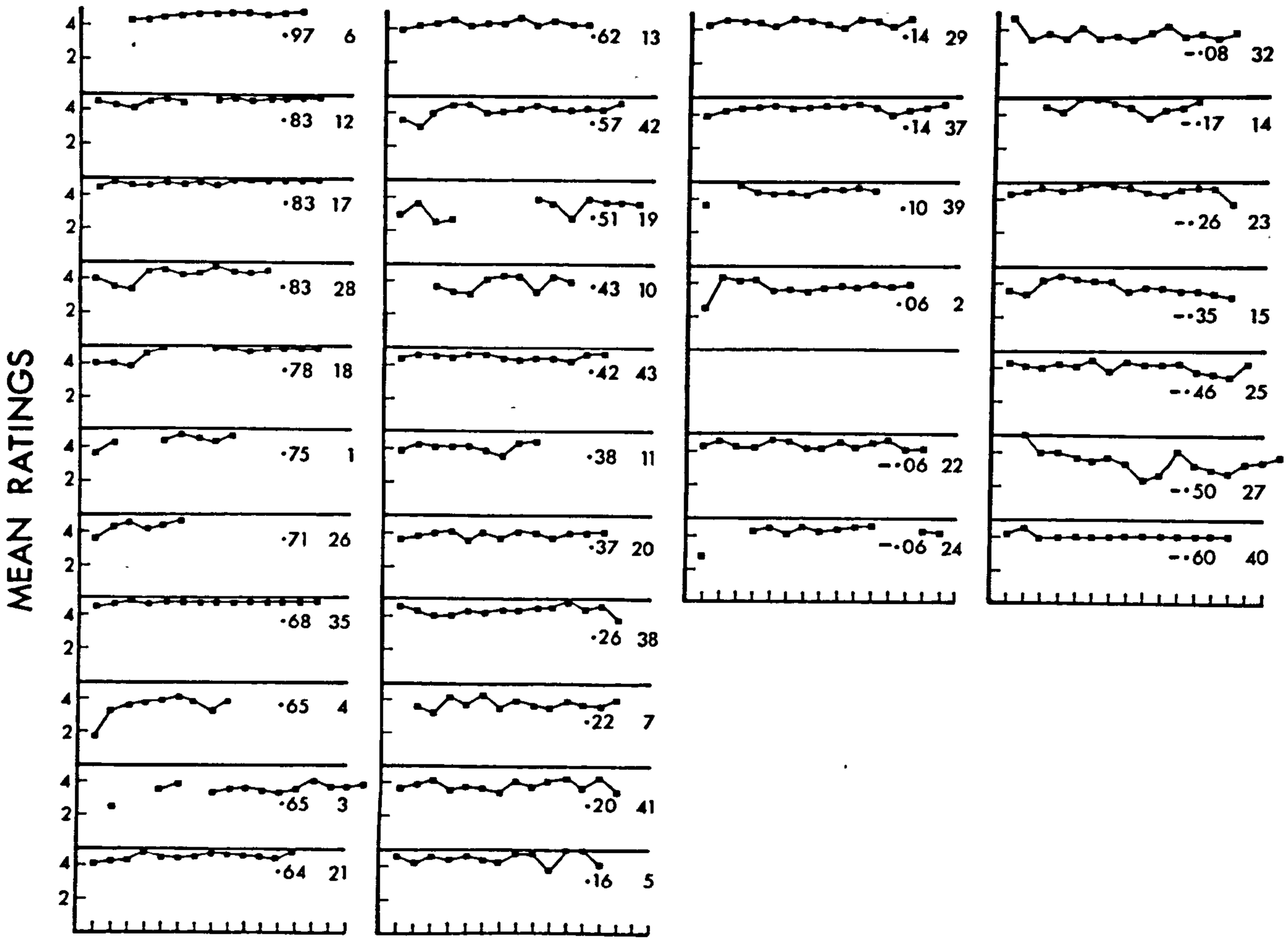


Fig. 4.8 Correlations Between Ordinal Week of Solid Feeding and Mean Ratings for All Foods Offered.

distribution of the Spearman rank correlations between ordinal week of solid feeding and mean rating for all foods offered (the points on individual graphs are the representations of the actual numbers correlated - in this case mean rating for all foods offered with ordinal position). The overall positive correlations that emerge indicate that as weeks of solid feeding progress, the mean rating for food items increases.

For 14 dyads (40%), the positive correlations are highly significant (Kendall's Tau: $p<0.05$). Positive ratings increase as the baby becomes more experienced in solid feeding. For 3 dyads, the pattern seems to be reversed: babies' reactions receive higher ratings during the early weeks of the diary than they do in subsequent ones.

In an attempt to gain some insight into the possible reasons for this reversal, the diaries of these dyads were closely re-examined. With dyad 27, the main issue seems to be this baby's definite dislike for savouries in general. Savouries are introduced to his diet during the fifth diary week, and this is the point from which ratings begin to decrease. As far as dyad 40 is concerned, the first two weeks seem to get higher ratings because the mother uses '++' very much. In subsequent weeks, '+' is used instead. Hence, the slight decrease in mean ratings. If one looks back at Figure 4.5, there is a significant second-order correlation for dyad 25. This mother seems suddenly to

Insert

Once the overall trends were obtained (Figs 4.3, 4.4, 4.5, 4.7 & 4.8), an attempt was made to analyse them in relation to two predictor variables, namely method of early milk feeding (breast, bottle or both) and sex of the child. Chi Square tests were performed on the five 2x3 tables (negative /positive correlation versus the three methods of milk feeding) and the five 2x2 tables ( negative/positive correlation versus sex). No results were significant at the $p<0.05$ level.

It must be stressed, however, that this type of analysis was beyond the initial scope of the thesis. With a different experimental design these relationships could be studied in greater depth - a task for further research ( possibly using regression analysis).

introduce a wide range of new food items during weeks 11 and 12. This number tapers off in subsequent weeks to the levels it used to be during the first two diary weeks. One could speculate that the decrease in ratings reflects the baby's slight difficulty with this sudden increase. In addition, during the second half of week 14 (mean rating at its lowest), the baby was unwell and received negative ratings for all the solid meals taken during one day. The following two days included milk feeds only.

In summary, one could say that Figures 4.7 and 4.8 demonstrate the growth of confidence or 'ease' in feeding that develops as mothers and their babies become more experienced with solid feeding. This progress is reflected in the pattern of change in the negative ratings over successive weeks of solid feeding. Overall, one could generalise that for half the babies, the reactions to food items do not change across diary weeks. These babies take to solid feeding quite well and their reactions are not significantly influenced by increased experience with solid feeding. As far as the other half is concerned, the majority seems to settle down to steady 'easy' feeding within a very short period of time.

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Relation of Food Reactions to Novelty of Specific Food Items

One of the questions investigated in relation to early solid feeding was how babies react to new (unfamiliar) food

items. Mothers are keen to introduce their baby to a variety of new foods from very early on (see section 4.3.1.1.2). How do babies respond to novelty? It was felt that the best way to answer this question from the data collected was to look at the probability of negative ratings as a function of the ordinal position of presentation of food items. For each ordinal occurrence the mean rating for all foods offered in a particular dyad was calculated. A grand mean was then obtained across all dyads. The variation of the grand mean with ordinal position is plotted in Figure 4.9. This figure shows that new food items seem to be responded to with apprehension (neophobia). This finding was analysed in greater detail in relation to the actual ratings mothers gave their baby's reactions: an Analysis of Variance (Table 4.3a) was performed on the average ratings, for all food items, each mother gave her baby's reactions, as a function of familiarity with a specific food item (i.e. how often it had been offered, its ordinal position in the menu). Thus, the interest was in how the ratings changed as a function of the number of times the specific food item had been used (for practical purposes, it was decided to use food items that had been offered up to 10 times). The results were significant ($p<0.01$): increased familiarity with a food item increases its reported rating.

Having established that, overall, babies tend to respond to novelty with initial wariness, it became apparent that this finding could imply at least two different things,

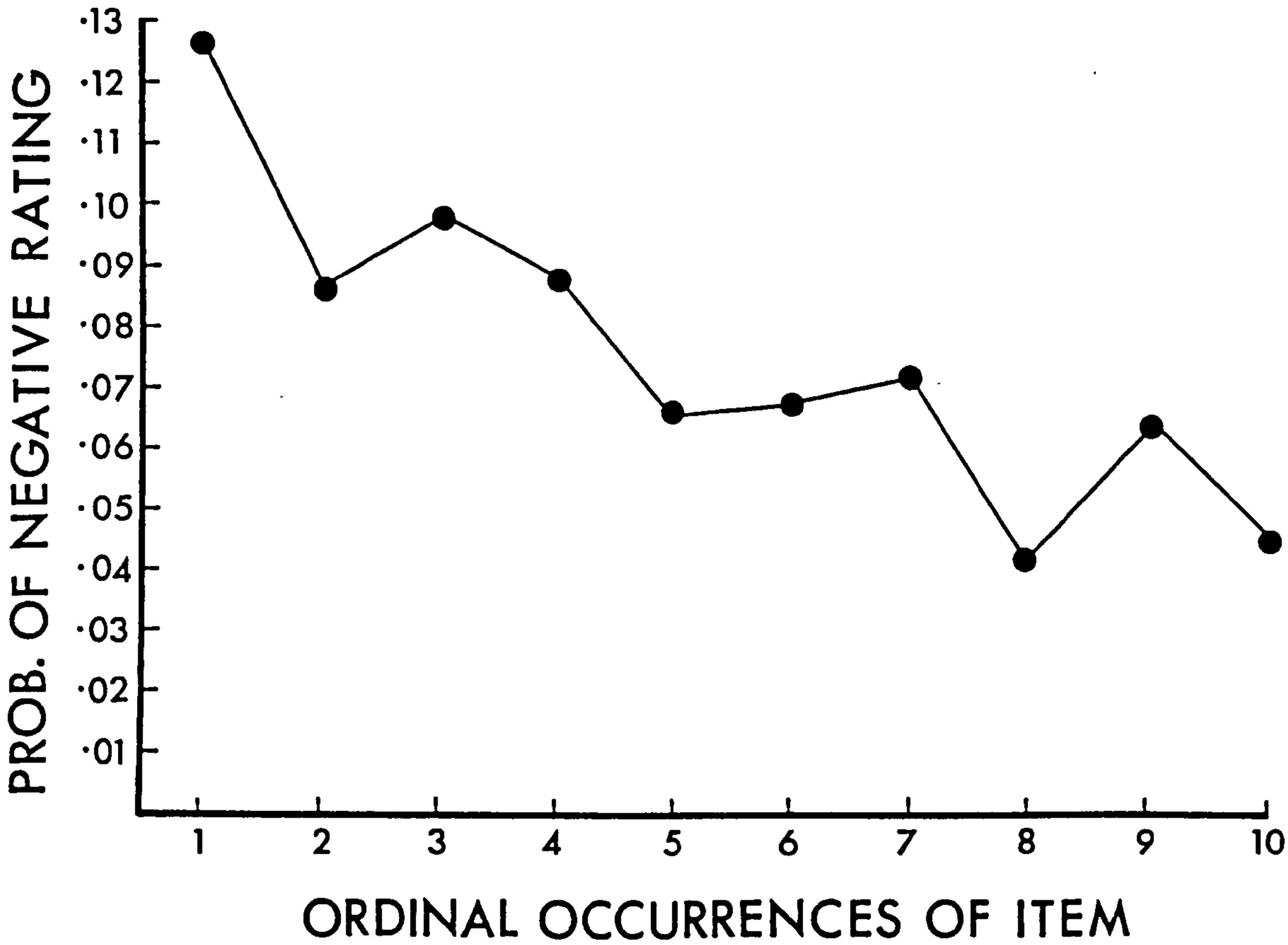



Figure 4.9 Probability of Negative Ratings Across Successive Weeks of Solid Feeding.

Table 4.3a Analysis of Variance on Average Ratings as a Function of Familiarity: Foods Offered from First Presentation to Tenth.

| Source of Variation | Sum of Squares | df | Variance Estimate | F |
|---|---|---|---|---|
| Dyad (rows) | 60.05 | 34 | 1.77 | |
| Familiarity (columns) | 5.09 | 9 | 0.57 | 10.06 |
| Interaction | 17.22 | 306 | 0.06 | |

( $p<0.01$ )

Table 4.3b Analysis of Variance on Average Ratings as a Function of Familiarity: Foods Offered from First Presentation to Fifth.

| Source of Variation | Sum of Squares | df | Variance Estimate | F |
|---|---|---|---|---|
| Dyad (rows) | 33.96 | 34 | 1.00 | |
| Familiarity (columns) | 1.56 | 4 | 0.39 | 7.67 |
| Interaction | 17.22 | 306 | 0.06 | |

( $p<0.01$ )

Table 4.3c Distribution of Average Ratings for First Five Presentations of Short- and Long-Lived Items.

| Dyad | S/L | L/L |
|---|---|---|
| 1 | 3.037 | 4.568 |
| 2 | 3.840 | 4.153 |
| 3 | 2.602 | 3.227 |
| 4 | 3.456 | 4.212 |
| 5 | 2.655 | 2.861 |
| 6 | 4.422 | 4.523 |
| 7 | 3.590 | 3.483 |
| 8 | 2.208 | 3.909 |
| 9 | 3.576 | 3.778 |
| 10 | 4.181 | 4.119 |
| 11 | 3.591 | 3.229 |
| 12 | 3.931 | 4.261 |
| 13 | 2.909 | 3.089 |
| 14 | 3.913 | 4.510 |
| 15 | 3.585 | 4.133 |
| 16 | 3.333 | 4.494 |
| 17 | 3.955 | 4.435 |
| 18 | 4.000 | 3.688 |
| 19 | 0.364 | 2.489 |
| 20 | 3.875 | 3.592 |
| 21 | 3.889 | 4.297 |
| 22 | 1.471 | 4.964 |
| 23 | 2.410 | 4.341 |
| 24 | 4.036 | 3.688 |
| 25 | 3.492 | 3.460 |
| 26 | 3.336 | 3.689 |
| 27 | 3.417 | 4.282 |
| 28 | 3.030 | 3.562 |
| 29 | 3.974 | 4.580 |
| 30 | 3.444 | 3.529 |
| 31 | 2.667 | 4.477 |
| 32 | 3.604 | 4.500 |
| 33 | 4.950 | 4.712 |
| 34 | 3.671 | 3.858 |
| 35 | 4.563 | 4.514 |
| 36 | 1.999 | 4.962 |
| Mean: | 3.360 | 4.005 |
| S.D.: | 0.878 | 0.584 |

**Pair t test:** **t = 4.22** **p < 0.01** (35 df)

or even maybe both at the same time: 1) that babies do indeed react suspiciously to new food items, although this suspicion is overcome very soon, and 2) that mothers sense (interpreting their baby's cues) certain of these suspicious reactions and withdraw the specific items from the baby's diet. If the latter proved to be true, then the study of the development of babies' reactions to novelty would be obscured. An attempt was made to investigate these two apparently competing factors based on the data available. The two possibilities were considered separately.

To establish whether mothers tend to withdraw food items that have been given a negative rating from their baby's diet (2), food items offered to babies were divided into LONG-LIVED and SHORT-LIVED ones. For the purpose of analysis, the former category included items that were offered more than five times (LL>5), and the latter items that were offered less or as often as five times (SL<=5). The question investigated was: are the ratings given to these two categories different in any way? The average ratings for the first five presentations for all food items in these two categories were calculated for all dyads and the overall means (XSL=3.36, and XLL=4.00) compared using the Pair t-Test (Table 4.3c). The results were highly significant ($p<0.01$): SHORT-LIVED items tend to receive lower ratings than LONG-LIVED ones during their early days; items that receive early low ratings tend to be dropped from the baby's menu.

In order to establish whether babies react to novelty with initial wariness (1), one must consider only the food items that are not withdrawn from their diets. In addition, if a fairly short analysis period is chosen (for example the first five presentations of a specific item), this increases the chance of including as many food items as possible. An Analysis of Variance (Table 4.3b) was performed on the average ratings as a function of familiarity. Each mother gave her child's reaction to all SHORT-LIVED items (5 average returns per mother - from 1st to 5th occurrence of item). The results were highly significant ($p<0.01$).

To conclude then, although mothers seem to employ some selective withdrawing strategy of disliked foods from their baby' diet, there still remains a residual baby-suspicion effect. The crude initial analysis performed can be taken to imply this suspicion. The babies' neophobia to food items is not an artefact of their mother's selective withdrawing strategy.

Distribution of Food Items for Individual Dyads

Having discussed the issue of how children react to novelty in feeding (see section 4.3.1.2.2), it was felt appropriate to study the distribution of specific food items across individual dyads. These data are presented in Appendix A.4. The figures provide a very clear picture of the frequency with which food items are offered to

individual babies as well as the babies' reactions to individual items. They also give an indication of missing ratings and of the number of diary days across which a specific food item was offered. At this point it is felt appropriate to make a clarification concerning food number 42 (mixed vegetables): mixed vegetables are an accompaniment of most baby-food varieties (tin, jar, or powdered), for example, 'chicken and vegetables', 'beef and vegetables', etc. Hence, these items tend to be overrepresented in the histories of food frequencies.

These figures provide scope for in-depth analysis of the developmental history of the responses of individual children to specific food items. As far as the aim of the present thesis is concerned, some general points will be made. It becomes quite obvious when studying these figures that most mothers do not 'stick' to particular foods. If this had been the case, the figures would show long uninterrupted lines of (relatively few item) ratings. The picture instead is one of many short bursts. It is beyond the scope of the present thesis to formally analyse these temporal patterns. The main point to stress is that these figures dramatically emphasize how 'creative' mothers are in planning their baby's diet. Babies seem to get plenty of

regular change and variety very early on. Another general observation to make about these figures concerns the large individual variation that exists among the dyads. Each baby is an individual in his own right. So is his mother. The two make up a unique dyad, a dyad that very soon develops its own unique patterns of interaction in all aspects, including feeding.

4.3.2

## Mothers' Comments

4.3.2.1

### Introduction

As mentioned previously, the main aim of the Diary Study was to provide detailed background information on the range of experiences of the early solid feeding setting for both the mother and her baby. The self-report records that the mothers completed involved both a more closed, formal system of applying a rating scale and including SPECIFIC information required by the researcher, as well as a more open-ended system of FREE COMMENTARY. The results of the former system have been discussed in the previous section when describing the 'routine' aspects of early solid feeding. In this section, the focus will be on the comments mothers included in the Diary. It was felt that the mothers should be given the opportunity to mention any of their own personal comments -comments they felt were important to feeding. It must be stressed once again that, when the

instructions were given to the mother as to how to complete the Diary, she was merely offered the opportunity of making any additional comments. In no way was she made to feel that it was a task she had to do, a task indispensable to the value of the Diary itself. Hence it was hoped that any comments made would be a genuine reflection of an issue the mother felt important to feeding, an issue she felt worth sharing.

The mothers' comments were analysed on three levels:

A) Total number of comments (entries) mentioned per week of keeping the Diary.

A comment on this level of analysis is defined rather loosely, not so much in terms of <u>content</u> per se but more in terms of its natural structure as it occurs in mothers' writing. So a comment may include more (or less) than one grammatical sentence, when the mother is expressing her stream of thought and presenting it in this way. A comment may also include more than one piece of information; on this level of analysis, however, the interest is only in the absolute number of naturally occurring, "conversational", comments/entries.

B) Total number of <u>coded</u> comments per week of keeping the Diary.

Not all comments made by each mother were included in the actual coding. In order for a comment to be considered worth coding and analysing beyond level A it had to provide more information than that included in the menu part of the Diary (type and variety of food offered to baby, feeding

time, ratings of baby's reaction both to specific courses and to entire meals). Comments were also excluded from this level of analysis if they contained casual information, unrelated to feeding and specific feeding experiences for either mother or child (eg. "Out all day so baby didn't have mixed feed"; comments referring to time of day baby was being fed, etc.).

C) On this level, comments were coded according to their content(s). Hence, a content analysis was carried out on the comments included in analysis B. It was frequently the case that a comment as expressed by the mother and included under analysis B was given two or more codings during analysis C: the 'naturally occurring' comments were broken down into the multiple meaning units they (possibly) consisted of.

Each of these three levels will now be considered in turn and the comments within each discussed for the sample of 43 mothers. Before proceeding, however, it is felt necessary to make a general point, giving an overall impression from coding the comments. Initially, before handing out the Diaries and during the planning stage, there was an uncertainty as to how long the mothers would be able to keep up this 'homework' activity. However, the cooperation of the mothers in this exercise dissolved any apprehensions. Each mother was given 15 diary sheets - the equivalent of 15 weeks. The mean number of weeks completed was 12.7. So on average, mothers kept the Diary for 13 weeks. And, not only did they complete the menu part of the

Diary, but they were also very keen to share their personal comments.

Level A: Figure 4.10 shows the distribution of naturally occurring comments/entries mothers made across successive diary weeks. The high frequency of comments revealed in this figure provides a very clear picture of mothers' willingness (and possibly their need) to share and discuss their early feeding experiences.

Level B: How many of these naturally occurring comments, however, included the type of information required for them to be submitted to content analysis? In other words, did the comments mentioned by mothers simply repeat what was included in the menu section of the diary or did they elaborate on that information? Table 4.4 gives an overall impression of the percentage of coded comments across all mothers.

A look at the above table indicates that for 37 of the 43 mothers (86%), between 71% and 100% of their comments were considered eligible for coding beyond level A. Hence it is apparent that mothers are not only willing to share experiences and comments, but that much of what they said was of 'psychological' interest to the study of feeding experiences both for themselves and for their babies: mothers do not merely repeat what they had indicated on the menu part of the Diary, nor do they discuss casual information with no bearing on their specific experiences from feeding their baby.

Level C: This level of analysis refers to the content analysis performed on the comments included under analysis

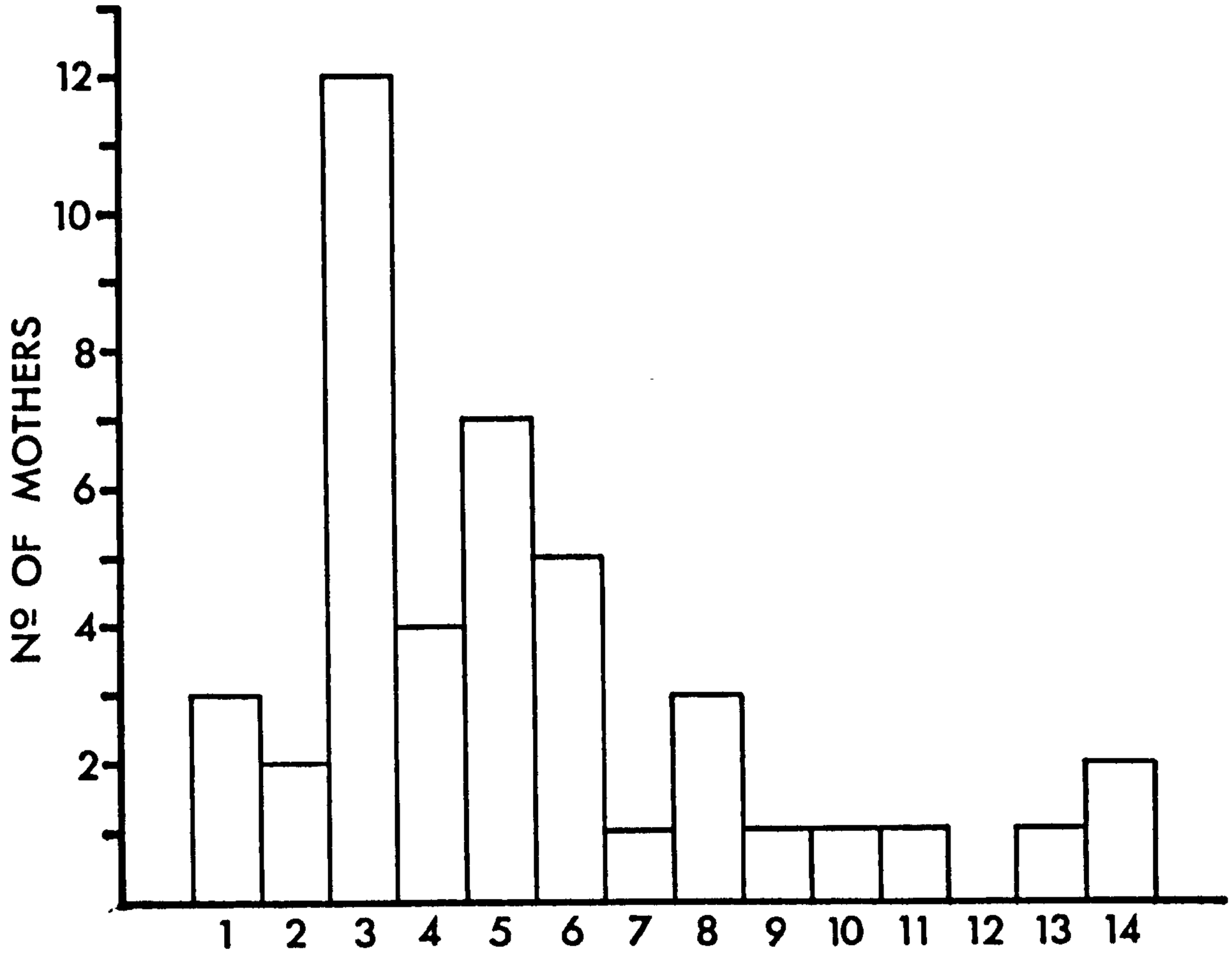



Fig. 4.10 Distribution of Naturally Occurring Comments/ Entries Across Successive Diary Weeks.

B. Before considering in detail the actual 'contents' of these comments, let us have a look at the overall number of comments which can be broken down into more than one unit of meaning (Table 4.5).

The tabulation of frequencies to which multiple meanings were ascribed clearly demonstrates that mothers not only elaborate on the coding of the menu section of the Diary, but that their comments provide a rich and varied source of information.

The focus will now be on the actual results of the content analysis performed on these comments. They will be discussed on three levels, proceeding from a more general to a more specific categorisation (Figure 4.11).

The total number of meaning units which actually emerged from the breaking down of the naturally occurring comments of all mothers was 2777.

1) On a first level of analysis, there is roughly an equal division between specific and general comments. The former category includes comments (46.3%) referring to specific food items and/or entire meals; the latter, comments (53.7%) referring to early solid feeding in general.

2) Continuing the analysis one step further, each of the above primary categories can be divided into two subcategories. Within the specific category, 30.9% of the comments (14.3% of the total 2777) are Mother-Centred, referring to each particular mother's interpretations of (or her attempts to interpret) her baby's specific (referring to specific food items or entire meals) feeding behaviour,

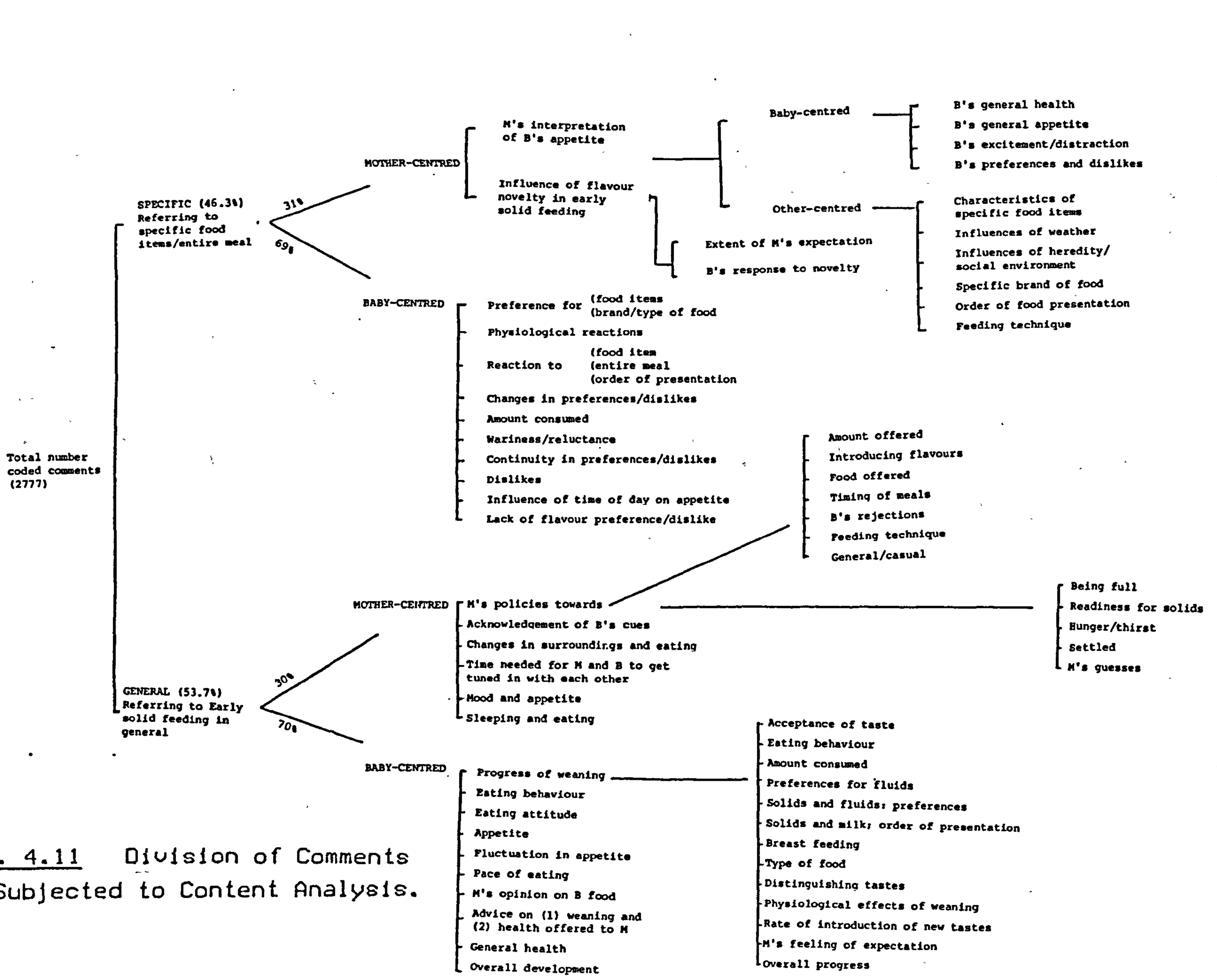



Fig. 4.11 Division of Comments Subjected to Content Analysis.

while 69.1% of them (32% of the total 2777) are Baby-Centred, and refer to a mother's descriptions of her baby's reaction to specific food items and entire meals. Within the general category, 30% of the comments (16.1% of the total 2777) are Mother-Centred and refer to mother's expectations, interpretations, her attitudes and policies towards solid feeding in general, whereas 70% of them (37.6% of the total 2777) are Baby-Centred and include commentary on the nature of early solid feeding.

3) The third level of analysis refers to the comprehensive categorisation of the 2777 coded comments. (For detailed information on the distribution of comments across all dyads, see Tables A.1-A.5 in Appendix A.5). In the following section, these categories will be discussed in detail.

4.3.2.2

## Results

4.3.2.2.1

### Specific Comments: Mother-Centred

#### 1) Mother's commentary on factors influencing Baby's appetite

This issue is a very important one for most mothers: 39 (91%) of them contributed to a total of 222 comments (8% of the total 2777, and 56% of the Specific Mother-Centred comments) concerning their attempts to interpret their baby's reactions to specific food items as well as to entire

meals. They try and explain lack of appetite, preferences and dislikes, physiological reactions to food, and uncertainties about flavours. Mothers seem to actually reflect on why the baby reacts the way he does and give a wide range of such explanations. 60% of these interpretations are Baby-Centred: they are based on the baby's physical or psychological state or on particular preferences and dislikes. Such factors that influence appetite 'come from the baby'. It is obvious that, even at this early age, mothers acknowledge that the baby is not a passive recipient but an active participant in their feeding interactions. The rest of the comments (40%) are Other-Centred: they are based on external factors influencing the baby's appetite.

The focus will now be on the variety of comments within these two categories: what kinds of interpetations do mothers give?

Table 4.6 shows the categories of Baby-Centred interpetations mothers gave. What follows is a listing of the contents of the categories of comments included in the table.

CATEGORY: Baby's General Health

CONTENTS: Baby teething, being tired, not being well.

CATEGORY: Baby's General Appetite

CONTENTS: How hungry baby actually is.

Table 4.6 Catagories of Baby-Centred Interpretations Within the Specific Comments: Mother-Centred Catagory.

| MOTHER'S INTERPRETATIONS BASED ON: | NO. OF MOTHERS* WITH AT LEAST ONE COMMENT IN THIS CATAGORY | | TOTAL NO. OF COMMENTS | % OF N=222 COMMENTS |
|---|---|---|---|---|
| B's general health | 31 | (80%) | 101 | 45.5 |
| B's general appetite | 10 | (26%) | 23 | 10.4 |
| B's excitement/ distraction | 4 | (10%) | 5 | 2.3 |
| B's preferences/ dislikes | 4 | (10%) | 4 | 2.3 |

* Total of 39 mothers.

CATEGORY: Baby's Excitement/Distraction due to changes in the environment.

CATEGORY: Baby's Specific Preferences and Dislikes

Table 4.7 shows the Other-Centred factors mothers mentioned as influencing their baby's appetite. What follows is a listing of the contents of the categories included in the table together with some representative examples.

CATEGORY: Characteristics of Specific Food Item

CONTENTS: Food being too tart, too spicy, cold, different, etc.

Also, issue of food 'not agreeing with baby'.

CATEGORY: Influences of the weather, and especially heat.

CATEGORY: Influences of Heredity/Social Environment

EXAMPLES: "He doesn't like cheese very much at all, but my first child never liked it and still doesn't like cheese". "...and he seems to like most foods but prefers foods I like most".

Table 4.7 Catagories of Other-Centred Interpretations Within the Specific Comments: Mother-Centred Catagory.

| MOTHER'S INTERPRETATIONS BASED ON: | NO. OF MOTHERS* WITH AT LEAST ONE COMMENT IN THIS CATAGORY | | TOTAL NO. OF COMMENTS | % OF N=222 COMMENTS |
|---|---|---|---|---|
| Characteristics of specific food item | 22 | (56%) | 72 | 32.4 |
| Influences of the weather | 6 | (15%) | 12 | 5.4 |
| Influences of heredity/ social environment | 2 | (5%) | 2 | 0.9 |
| Specific brand of food | 1 | (3%) | 1 | 0.4 |
| Order of food presentation | 1 | (3%) | 1 | 0.4 |
| Feeding technique | 1 | (3%) | 1 | 0.4 |

* Total of 39 mothers.

CATEGORY: Specific Brand of Food

EXAMPLE: "Baby did not like either...varieties were tinned baby foods. Could this be the reason, as baby enjoys powdered foods?"

CATEGORY: Order of Food Presentation referring to either sweet/savoury or solids/milk.

EXAMPLE: "He was not interested in the milk at first so he had milk-food-milk-food".

CATEGORY: Feeding Technique

CONTENTS: Mother's handling of the baby.

EXAMPLE: "Think I have found the reason why baby was not enjoying
I was holding him incorrectly".

2) Extent to which mothers consider NEW flavour varieties as an important factor in early solid feeding This issue has been dealt with to a certain extent in the menu data (see section 4.3.1.2.2 ) via mothers' ratings. The overall conclusion was that babies respond to food novelty with initial suspicion. In this section, the focus will be on mothers' commentary on the novelty issue. Mothers seem to acknowledge the potential influence of new flavour

varieties on their baby's willingness to accept these foods. 37 mothers (86%) made 174 comments (6.3% of the total 2777 and 44% of the total Mother-Centred comments) reflecting their concern that food novelty might be an important factor in early solid feeding. To what extent, though, do babies fulfill their mothers' expectations? How do they respond to novelty? Of the 174 total comments, 131 (75.3%) describe a baby taking food well despite novelty, while 43 (24.7%) describe him as taking it with difficulty, uncertainty, or even refusing it. Of the 37 mothers who gave an answer in this category, 15 (40%) commented that their baby reacted to novelty very well, 2 (5%) that he reacted with wariness, and 20 (54%) gave answers falling in both categories. Hence, despite the fact that mothers <u>expect</u> novelty to make early solid feeding more difficult for the baby, babies <u>on the whole</u> accept novelty very well and even seem to appreciate it. Initially, these findings might seem to contradict the menu data. Nevertheless, when considering that <u>overall</u> positive ratings are much more common than negative ones (Figure 4.6), one could reasonably assume that it is this <u>majority</u> of positive ratings that is reflected in mothers' comments on how well their baby reacts to novelty.

To summarise then, mothers seem very concerned with trying to understand the <u>causes</u> of their baby's reactions both to specific food items and to entire meals. Most of the comments made in this context reflect mothers' perception of the role of factors 'within' the baby -his physiological and psychological state- in influencing these reactions. Mothers appreciate that the baby's overall state of health

and hunger affect his feeding. They also acknowledge that sometimes the baby is more preoccupied with his 'interesting' environment than with wanting to eat. As far as the baby's specific preferences and dislikes are concerned, only a small number of mothers comment on their effects on the baby's reaction. One might have expected more mothers to have commented in this category. However, it seems safe to assume that since mothers have already rated their baby's likes and dislikes in the Menu, they may feel less pressure (and need) to comment on this specific aspect of feeding again. When it comes to influences 'outside' the baby, over half the mothers made some reference to the taste, texture, temperature, etc. of specific food items. In a way, it seems as though mothers are indicating that it is the food that tastes bad rather than the baby who is tasting it as being bad.

The categories of comments included in Tables 4.6, 4.7, as well as those of the subsequent sections on mothers' comments, are very exhaustive. In some cases, it is only one mother who contributes to a specific category. However, the point of studying mothers' comments in detail was not only to give an impression of what the majority of them think and feel about feeding. In addition, it was felt important to give an impression of the ingenuity and the variety in the comments. All the comments the mothers shared in the diaries have been accounted for. In doing so, the 'humble' setting of feeding has proved to be a very rich projective one.

4.3.2.2.2

## Specific Comments: Baby-Centred

Two thirds of the SPECIFIC COMMENTS made by the mothers (67.5%) refer to descriptions of the baby's reactions to specific food items or to entire meals. Mothers are very concerned with their baby's reactions to particular foods. Almost all the mothers (98%) made at least one comment indicating their attempt to describe this reaction. Mothers not only interpret the baby's overall reaction to food and feeding (Specific Comments: Mother-Centred). In addition they try to identify the specific aspects of this reaction. 42 mothers made 821 comments (29.6% of the total 2777 and 67.5% of the total Specific Comments) in this category. Which aspects of the baby's reaction do they actually describe?

Table 4.8 shows the distribution of the comments mothers made when describing their baby's reactions both to specific food items and to entire meals. Almost half the mothers made at least one comment in each of the first seven categories. Hence, there doesn't seem to be any particular aspect of the baby's reaction that mothers comment on more frequently. Nevertheless, they are obviously very sensitive to a wide range of their baby's reactions to feeding.

What follows is a listing of the contents of the categories of comments included in Table 4.8 together with some representative examples.

CATEGORY: Preference for a) Food Item, and b) Brand Type of Food.

CONTENTS: Category also includes comments referring to baby's reaction to change of brand or type of food.

EXAMPLES: "He usually seems to prefer home-made to packet food". "Although she likes nearly all dinners, she prefers beef".

"Today I started him on Junior Foods. He seemed to enjoy them very much".

CATEGORY: Baby's Physiological Reaction to Food.

CONTENTS: Comments frequently accompanied by an indication of the mother's policy towards this reaction.

EXAMPLE: "The baby was sick in the evening. I don't

Table 4.8 Catagories of Comments Describing Baby's Reactions to Specific Food Items and to Entire Meals.

| ASPECT OF BABY'S REACTION DESCRIBED | NO. OF MOTHERS* WITH AT LEAST ONE COMMENT IN THIS CATAGORY | | TOTAL NO. OF COMMENTS | | % OF N=821 COMMENTS | |
|---|---|---|---|---|---|---|
| Preference for: | | | | | | |
| (a) food item | 32 | (76%) | 189 | 238 | 23 | 29 |
| (b) brand/type of food | 25 | (60%) | 49 | | 6 | |
| B's physiological reaction to food | 26 | (62%) | 89 | | 10.8 | |
| Reaction to food/meal/ order of presentation @ | 25 | (60%) | 97 | | 11.8 | |
| Changes in preferences/ dislikes | 24 | (57%) | 61 | | 7.4 | |
| Amount consumed | 24 | (57%) | 129 | | 15.7 | |
| Wariness/reluctance | 22 | (52%) | 90 | | 11.0 | |
| Continuity in preferences/dislikes | 20 | (48%) | 80 | | 9.7 | |
| Dislikes | 14 | (33%) | 23 | | 2.8 | |
| Influence of time of day on appetite | 9 | (21%) | 11 | | 1.3 | |
| Lack of flavour preference/dislike | 3 | (7%) | 3 | | 0.4 | |

* Total of 42 mothers.

@ Reaction to specific food item/entire meal and to order of presentation of sweet-savoury and/or solids-milk.

think the chicken and vegetable dinner agreed with her. I will try her again tomorrow".

CATEGORY: Description of Reaction to Specific Food.

CONTENTS: Includes 1) descriptions of reactions to preferred and disliked food items or categories of food, 2) preferences for order of presentation of sweets/savouries and solids/drinks, and 3) comments on baby's 'psychological' reaction to food (needing time to get used to a taste).

EXAMPLES: "He cries over having dinner but he loves his sweets". "When he gets his dinner and sweet at dinner time he must have a good drink before or else he starts to cry". "He didn't seem to take to it at first but eventually he took it rather well".

CATEGORY: Changes and Continuities in Preferences and Dislikes.

EXAMPLES: "He still doesn't like orange". "Baby took mixed vegetables well for the first time". " He never liked this one much".

CATEGORY: Amount of Food Consumed.

EXAMPLES: "He took very little at dinner time but was very eager to eat at teatime". "She ate all her dinner sweet".

CATEGORY: Wariness/Reluctance, or General Lack of Interest with Respect to Specific Food Items (without this necessarily affecting the

baby's actual eating it or eating all of it).

EXAMPLE: "She ate all her tea but I don't think she was sure of the taste".

CATEGORY: Comments on Baby's Dislikes.

EXAMPLES: "Absolutely refused".

"Really dislikes this taste".

CATEGORY: Influence of Time of Day on Appetite.

EXAMPLE: "He enjoys a sweet with his teatime meal".

CATEGORY: Lack of Flavour Preference/Dislike.

EXAMPLE: "I gave her different flavours of yogurt. She does not have any preference".

To summarise, mothers are very eager to describe their baby's reaction both to specific food items and to entire meals. Their comments reflect how sensitive and perceptive they are to a wide range of such reactions. Mothers are obviously concerned with their baby's preferences and dislikes. They comment (in addition to the menu ratings) on what these preferences and dislikes actually are as well as on how they develop (change) over time. Mothers seem very keen (and proud!) to acknowledge that their babies have preferred foods. Babies do not only have specific food preferences and dislikes. They also have preferences for the order in which the various courses of a given meal are presented. This seems particularly obvious when the courses refer more generally to solids and fluids. Mothers are very sensitive to this preference and modify their behaviour

accordingly. In addition to commenting on their baby's preferences and dislikes, mothers also describe his reactions towards the preferred or disliked items (specific food items, entire meals, and order of presentation of courses within a meal). They also comment frequently on their baby's physiological reaction to certain food items: they acknowledge that there are some things his system is not able to cope with yet. Mothers are also concerned with their baby's overall appetite at a particular meal and acknowledge that appetite may fluctuate during the day. The amount of food the baby has eaten gives mothers another indication of the extent to which he has enjoyed a specific food item. In addition to commenting on the baby's preferences, dislikes, and appetite (hunger), mothers seem very sensitive to his more subtle 'psychological' reactions to food: the baby might have eaten up his meal, yet his mother has perceived reluctance, wariness, or, more generally, a lack of interest in feeding. Sometimes wariness accompanies the introduction of new food items. At others, it reflects an overall disinterest in eating.

4.3.2.2.3

General Comments: Mother-Centred

This category includes comments mothers make in relation to their policies towards various aspects of early solid feeding, as well as their responses towards their baby's cues. Mothers seem very keen to share and comment on

their own behaviour in relation to the management of early solid feeding; they discuss their strategies in relation to a variety of its aspects. In addition, they seem very sensitive in detecting, interpreting, and responding to a wide range of cues from their baby.

The comments that have been grouped under this heading of General Mother-Centred Comments will now be discussed in detail.

1) Mothers' policies concerning various aspects of early solid feeding.

Table 4.9 shows the aspects of solid feeding mothers comment on.

41 mothers (95%) made at least one comment indicating their policies towards early solid feeding. 40% of the total General Comments fall in this category. What follows is a detailed listing of the categories of comments referred to in this table together with some representative examples.

CATEGORY: Mothers' Policies towards Baby's Rejections of Food.

CONTENTS: Baby's lack of interest in food.
Baby being sick during or after a meal.
Fluctuations in baby's appetite.
Baby being tired, not well, in a bad mood.
Mother's attempts to comfort baby.

EXAMPLES: "Again baby refused this flavour. I tried to 'sandwich' the meal. He still refused it".

Table 4.9 Mother's Policies Towards Various Aspects of Early Solid Feeding.

| MOTHER'S POLICY TOWARDS: | NO. OF MOTHERS* WITH AT LEAST ONE COMMENT IN THIS CATAGORY | | TOTAL NO. OF COMMENTS | % OF N=286 COMMENTS |
|---|---|---|---|---|
| Baby's rejections | 33 | (80%) | 110 | 38.5 |
| @ Food offering contexts | 27 | (66%) | 93 93 | 32.5 |
| Amount of food offered | 20 | (49%) | 32 | 11.2 |
| Introducing new flavours | 14 | (31%) | 24 | 8.4 |
| Timing of meals | 11 | (27%) | 15 | 5.2 |
| Feeding technique | 6 | (15%) | 8 | 2.8 |
| General, casual comments | 4 | (10%) | 4 | 1.4 |

* Total of 41 mothers.

@ Food offered in terms of: texture, brand, variety, mother's preferences, relative amount, plus order of presentation of sweet/savoury and solid/fluid.

"He was sick again so I'll forget them (tin scrambled eggs)".
"She showed no interest in yogurt today so I left it". "He is very impatient between courses so I try to placate him while he is waiting. I give him something to chew on -a carrot, a biscuit, some cheese- anything to keep him quiet".

CATEGORY: Food Offered to Baby.

CONTENTS: Texture, brand, variety, mother's preferences, order of presentation and relative amount of courses offered.

EXAMPLES: "I have now changed from first stage packet food to second stage packet food which is more lumpy and, I think, more tasty". "Tasted rather bitter to me, but I thought I'd see how he liked it before I added any sugar. He really enjoyed it as it was".

CATEGORY: Amount of Food Offered.

CONTENTS: Also includes comments expressing mother's uncertainty as to how much food to offer the baby.

EXAMPLES: "I am up to the maximum amount suggested on the packets". "The only thing I am a bit doubtful about is how much to give him. At the moment he takes...Sometimes I think he

would take more but I'm frightened of overfeeding him".

CATEGORY: Introducing New Flavours.

EXAMPLE: "I found with my first baby to introduce solids slowly was the best way. This seems to be working with my second child too. I do not like to introduce too many new flavours too quickly".

CATEGORY: Timing of Meals.

EXAMPLE: "I have changed...to giving him the rusk at breakfast and night time and it seems to be much better".

CATEGORY: Feeding Technique.

CONTENTS: Size and shape of spoon, feeding schedule, where the baby is being fed, etc.

EXAMPLES: "Today she sat in a high chair to be fed for the first time and seemed to enjoy it very much".

"I have no specific time for meals. I feed her when she is hungry".

CATEGORY: General, Casual Comments.

EXAMPLE: "Gave extra juice instead of small breast feed".

2) Acknowledgement of baby's cues.

Just under half the mothers (21 - 49%) made at least one comment indicating their response to specific cues from the baby. Table 4.10 shows the various cues mothers discuss. What follows is a listing of these cues together

Table 4.10 Mother's Acknowledgment of a Variety of Cues from the Baby.

| ACKNOWLEDGMENT OF BABY'S CUES FOR: | NO. OF MOTHERS* WITH AT LEAST ONE COMMENT IN THIS CATAGORY | | TOTAL NO. OF COMMENTS | % OF N=61 COMMENTS |
|---|---|---|---|---|
| Being hungry/thirsty | 18 | (86%) | 49 | 80 |
| Being ready for solids | 4 | (19%) | 5 | 8 |
| Mother's "guesses" about meanings of cues | 2 | (10%) | 5 | 8 |
| Being full | 1 | (5%) | 1 | 2 |
| Being settled | 1 | (5%) | 1 | 2 |

* Total of 21 mothers.

with some representative examples.

CATEGORY: Cues for Being Hungry/Thirsty.

EXAMPLE: "He does not do this (need a drink before his solid meal) at teatime so he must be more hungry at dinnertime".

CATEGORY: Cues for Being Ready for Solids.

CONTENTS: Solids in general as well as readiness for specific food items.

EXAMPLES: "She was starting to get hungry between feeds so I started her on cereal". "I started to give him a dinner and a sweet as he is not bothered about his milk".

CATEGORY: Mother's Guesses about Meanings of Cues.

EXAMPLE: "When the baby is being fed she often grizzles. This I find is an ambiguous sign. Is is because she doesn't like the food? Is it because she isn't fed quickly enough? She cries when she clearly doesn't want it".

(NB. This comment is a very articulate one. However, is is reproduced to show how concerned some mothers are about early feeding and about understanding their baby's behaviour).

CATEGORY: Cues for Being Full.

EXAMPLE: "He lets me know when he has had enough".

CATEGORY: Cues for Being Settled.

EXAMPLE: "He is much more settled now so I will continue with this regime for the time being".

In the category of General Mother-Centred comments, mothers' commentary on 'psychological' factors influencing early solid feeding has also been included. These factors deal with the baby's attitude, feelings, and mood as well as with the establishment of a relationship between baby and caretaker during feeding. These comments will now be studied in detail.

3) Association between eating well and sleeping well.

Two thirds of the mothers (67%) made at least one comment indicating that they acknowledge a relationship between sleeping well and eating well in their baby. A hungry baby is not settled, does not sleep through the night, or demands food very often. Mothers tend to interpret their baby's signs of discontent as hunger and, as becomes obvious from the comments, are usually right. Eating and sleeping well are two indices of a contented baby for most mothers ("He still seemed hungry after beef dinner and as he had wakened hungry the previous night, I gave him pudding as well"; "Every day varies, but she enjoys her meals and sleeps better for it too").

4) Acknowledgement of the possibility of the influence of changes in the surroundings or the caretaker on the baby's overall behaviour (including feeding).

Just under a quarter of mothers made at least one comment indicating their feeling that the baby's behaviour can be susceptible to changes in his environment ("This week we were staying with grandparents on holiday. The baby soon settled in and thoroughly enjoyed the fuss made of him").

5) Mothers also seem to acknowledge the influence the baby's mood might have on his appetite. A tired baby or one who is 'twisty' usually is not keen on eating either ("Baby not in a good mood at all today. Doesn't seem to enjoy anything". "He has not had very large quantities of food today. He seems very twisty and has drank more milk than usual").

6) The last comment in this category comes from one mother, a teacher. She was going back to work after having the baby who was going to be looked after during the day by his father. She comments on the fact that both the caretaker and the baby need time to get used to each other in the feeding situation ("His father is giving him all solids and bottles in preparation for me going back to work on Monday"; "Things are becoming more settled now and the baby's father has worked out a suitable routine for both himself and the baby"). Although only one mother has contributed this comment, it is still felt potentially very important: the number of mothers going out to work is increasing and consequently so is the incidence of multiple caretaking (as far as our sample is concerned, let it be stressed once again that all but one mother were staying at

home looking after the baby themselves).

To summarise, mothers seem very concerned with commenting on their own behaviour in relation to early solid feeding. These behaviours are to a large extent influenced by mothers' perceptions and interpretations of their baby's cues (signals). Mothers discuss their policies towards their baby's rejections both of specific food items and of entire meals. Overall, mothers tend to re-offer a rejected food item during a subsequent meal (this finding is enforced in the results of the interviews in Chapter 5). They also seem very sensitive to their baby's lack of appetite (his just not being hungry) on a particular meal or day, and adjust their behaviour accordingly. Many mothers discuss their strategies in relation to the quality and quantity of food offered to the baby. They comment both on more food-related issues (texture, brand, variety, etc.), as well as on their strategies concerning the order of offering the various courses of the meal to the baby. Mothers also comment on their strategies in relation to the timing of meals and their feeding technique. Some acknowledge that their <u>own</u> preferences influence the food they give the baby. Introducing new food items to the baby's diet is another issue mothers discuss. As mentioned earlier, overall, babies seem to take to new foods quite easily (see Figure 4.6 indicating an overall majority of positive ratings), although there is considerable evidence of neophobia in some cases (see section 4.3.1.2.2 ). In addition, mothers tend to offer quite a variety of new foods in the early weeks of

solid feeding (see section 4.3.1.1.2 ) and at the same time expect novelty will be a problem for the baby (see section 4.3.2.2.1). Hence, when it comes to introducing new food items, they are very aware that this is a new experience for the baby and are alerted to observe his reactions. Being able to 'read' the baby's cues seems a very important element of any smooth interaction between mother and baby. In the case of feeding where there is a task to be accomplished jointly by mother and baby, sensitivity to and 'correct' interpretation of her baby's cues is even more crucial. Mothers are very perceptive of their baby's signals in relation to being hungry and thirsty. Some mothers describe their baby's cues for being ready for solid food. They are also sensitive to a wide range of more 'psychological' factors that might influence early solid feeding. Mothers feel that if their baby has eaten well, then he is contented overall and in addition sleeps well. They are aware that his appetite might be affected both by 'internal' factors -the baby's mood- and by 'external' factors, ie. by changes in his environment.

4.3.2.2.4

General Comments: Baby-Centred

This category includes a variety of comments mothers make concerning the nature of early solid feeding in general. They describe the progress of weaning over the period they have been keeping the diary and comment on a

variety of aspects of the baby's behaviour and reactions. In an attempt to catalogue these comments, the ones referring to the progress of weaning have been grouped together, and the remaining ones discussed under independent headings. Let it be stressed once again that one of the principal aims of the discussion of the comments mothers made is to give an overall impression of the variety of issues mothers feel important to themselves and their baby as far as early solid feeding is concerned. It is strongly felt that this type of 'cataloguing' is the primary step in any attempt to gain some insight into the ways mothers perceive their baby's behaviour as well as their own role in this early interaction.

1) Progress of weaning Most mothers (98%) made at least one comment concerning their baby's progress in early solid feeding. It is obvious from Table 4.11 that they describe a variety of indices of this progress, indicating the variety of issues they feel the baby has to cope with and master. What follows is a detailed listing of the contents of the categories of comments included in Table 4.11 together with some representative examples.

CATEGORY: Overall Progress.

CONTENTS: Mother's attempts to summarise the process of early solid feeding during a specific period. Indices of progress of weaning described as well as general descriptions of this

Table 4.11 Aspects of Progress of Weaning Mothers Comment on.

| PROGRESS OF WEANING: ASPECTS | NO. OF MOTHERS* WITH AT LEAST ONE COMMENT IN THIS CATAGORY | | TOTAL NO. OF COMMENTS | % OF N=476 COMMENTS |
|---|---|---|---|---|
| Overall progress | 30 | (71%) | 113 | 23.7 |
| Preferences for fluids | 27 | (64%) | 93 | 19.5 |
| Amount of food consumed | 24 | (57%) | 41 | 8.6 |
| Solids and fluids: relative preferences | 20 | (48%) | 60 | 12.6 |
| Mother's feelings and expectations | 18 | (43%) | 37 | 7.8 |
| Acceptance of tastes | 15 | (33%) | 30 | 6.3 |
| Solids and fluids: order of presentation | 13 | (31%) | 29 | 6.1 |
| Gradual progress | 12 | (29%) | 23 | 4.8 |
| Breast feeding | 11 | (26%) | 21 | 4.4 |
| Eating behaviour | 11 | (26%) | 17 | 3.6 |
| Physiological effects of weaning | 3 | (7%) | 5 | 1.0 |
| Type of food | 3 | (7%) | 4 | 0.8 |
| Distinguishing tastes | 3 | (7%) | 3 | 0.6 |

* Total of 42 mothers.

progress.

EXAMPLES: "This is the first week on solids. On the whole, he has taken to them very well". "I'm finding it difficult to introduce anything different to him.

He doesn't seem to like anything new".

CATEGORY: Preferences for Fluids.

EXAMPLES: "I am still worried that he won't take anything but milk". "Tried blackcurrant syrup today but he was not keen".

CATEGORY: Amount of Food Consumed.

EXAMPLES: "The baby seems to be enjoying solids. I have increased the amounts.

Less milk is being taken".

"He will only take very small amounts. I feel he is indifferent about it all".

CATEGORY: Solids and Fluids: Preferences.

EXAMPLES: "She wouldn't have any tea. Only wanted her milk".

"He ate his rusk but was only really interested in his bottle".

CATEGORY: Mother's Feelings and Expectations.

EXAMPLES: "I thought it would be much more difficult introducing him to solids". "I am happy with the baby's feeding. I am not worried if she takes the food or not...She will eat the food given to her if she is hungry".

"He is not doing well on solids. I wonder whether to wait a day or two before trying to

give him anything else".

CATEGORY: Baby's Acceptance of Tastes.

EXAMPLE: "He seems to like the taste of solids very much".

CATEGORY: Preferences for Order of Presentation of Solids and Fluids.

EXAMPLE: "I find it easier with feeding her dinners before her bottles rather than just before she is due to be fed. If I wait till then, she is too hungry and can't be bothered to be spoonfed but she'll take her bottles as it is quicker".

CATEGORY: Baby Needing Time to Get Used to Variety of New Tastes he is Being Offered.

EXAMPLE: "The baby is not very keen on any taste, sweet or savoury, the first or second time. He has gradually come to enjoy three or four different tastes".

CATEGORY: Breastfeeding.

CONTENTS: Baby's reactions to breast feeding when solids are introduced as well as mother's feelings and perceptions concerning the importance of breastfeeding.

EXAMPLES: "The baby has started to refuse breastfeeding completely".

"I have increased the baby's time at the breast as he has begun excessive thumb sucking. After about 10 minutes he is only sucking for comfort which I feel is necessary

at the moment".

CATEGORY: Eating Behaviour.

CONTENTS: Baby's progress in handling the spoon as well as his attempts to feed himself.

EXAMPLES: "The baby has now mastered the spoon and takes feeds readily".

"He enjoys food he can feed himself with, eg. biscuits, bread, apples,carrots, etc.

CATEGORY: Physiological Effects of Weaning.

EXAMPLE: "Since starting solids...it has helped to get her wind up. She also brings very little feed back. It has helped her bowels as well".

CATEGORY: Type of Food Consumed by Baby.

EXAMPLE: "I watered down the liquidized yorkshire pudding the first time, but the second time I found he could cope with the lumps so I left it thick".

CATEGORY: Baby's Ability to Distinguish Tastes.

EXAMPLES: "Although very young, he can definitely distinguish tastes".

"He enjoys all sweets but is becoming choosier with the dinners he eats".

The focus will now be on the remaining categories of comments included in the grouping of General Baby-Centred

Comments. Table 4.12 includes the categories the comments have been grouped in and the number of mothers who made at least one comment in each as well as the total number of comments corresponding to each category.

A listing of the contents of the categories in Table 4.12 together with some representative examples follows.

CATEGORY: Baby's General Health.

CONTENTS: Baby's weight gain, teething, colic, sleeping patterns, etc.

EXAMPLES: "After two weeks on solids the baby is still only gaining approximately 4oz. per week".
"The baby is now sleeping through the night".
"The baby has gained 24ozs. in two weeks; I must be careful not to give him too much".

CATEGORY: Fluctuations in Baby's Appetite.

CONTENTS: Acknowledgment that fluctuations may be transient, or reflect boredom with a particular type or brand of food.

EXAMPLES: "During this week, she appeared to go off yogurt.
As this is my fourth child, I am not at all worried about this". "Seemed reluctant to open his mouth for eggs. He usually loves them".

CATEGORY: Fluctuations in Baby's Hunger.

EXAMPLES: "Baby doesn't seem hungry at all.

Table 4.12 Remaining Baby-Centred Catagories of General Comments.

| MOTHER'S COMMENTS ON: | NO. OF MOTHERS* WITH AT LEAST ONE COMMENT IN THIS CATAGORY | | TOTAL NO. OF COMMENTS |
|---|---|---|---|
| Baby's general health | 26 | (60%) | 114 |
| Fluctuations in baby's health | 24 | (56%) | 109 |
| Appetite (hunger) | 23 | (54%) | 190 |
| Baby's eating behaviour (conduct) | 19 | (44%) | 76 |
| Pace of eating | 11 | (26%) | 29 |
| Mother's opinion on baby food | 9 | (21%) | 21 |
| Baby's overall development | 9 | (21%) | 14 |
| Advice offered to mother | 8 | (19%) | 13 |
| Baby's eating | 3 | (7%) | 5 |

* Total of 43 mothers.

Thought it best not to give him solids". "He woke up for a feed at 11:30pm.
Most unusual. Had more milk than usual during the day".

CATEGORY: Baby's Eating Behaviour (Conduct).

EXAMPLES: "I gave the baby a rusk to chew for the first time. He enjoyed it very much". "He likes the spoon but he quite often just plays with the food".

CATEGORY: Pace of Eating.

EXAMPLES: "The baby is still very slow to feed". "He seems to be taking his meals a bit quicker now".

CATEGORY: Mother's Opinion on Baby Food.

EXAMPLES: "I think the tinned food has more flavour than the powdered, so I will try different flavours of them". "The packet food tastes and smells better than most".

CATEGORY: Baby's Overall Development.

EXAMPLE: "He is now five months old. He weighs just over 14lbs. He is a lively, cheerful baby. Very responsive to adults and children. He can now roll over from his front to back. He can grasp things with two hands. He makes lots of sounds".

CATEGORY: Advice Offered to Mother.

EXAMPLES: "Advised by the health visitor to offer solids at two feeds per day and to offer restricted varieties (up to 3 per week) as

variety was not important at this stage". "I gave him his solid feed before his milk in order to reduce his sickness. This was suggested by the Clinic".

CATEGORY: Baby's Eating Attitude.

EXAMPLES: "She is eager to try anything I am holding in my hand".

"Baby seems to enjoy eating very much".

To summarise, mothers discuss a variety of aspects of the baby's overall development in relation to early solid feeding. It seems that mothers are aware that the baby has to cope with a wide range of new experiences in relation to early solid feeding. Most mothers tend to

summarise and evaluate their baby's overall progress in solid feeding during a specific period. This might be, for example, the first week of solid feeding, or mothers might make such a comment towards the end of the diary. As the baby becomes more experienced with solid feeding, he tends to eat more solids both in terms of variety and in terms of amount and drink fewer fluids. During the early stages of solid feeding or when the baby is unwell, a drink is generally appreciated much more than solids. Sometimes, in the beginning of a meal, a drink makes for a more positive attitude towards solids, soothing the baby's hunger and hence helping him be more 'cooperative' in attempting to

deal with 'real' food. Some mothers acknowledge that it might take the baby a while to get used to the new experiences of solid feeding. Mothers also comment on the more 'technical' aspects of their baby's eating: his eating from a spoon as well as his own attempts to 'handle' the food and feed himself. Babies seem to manage very well and actually enjoy participating in feeding (this issue will be highlighted once again when discussing the results of the follow-up interviews). Mothers seem very keen to share their initial expectations about how solid feeding 'should' have progressed and to comment on the degree to which these expectations were fulfilled. For most, solid feeding is easier than they had originally expected (see also comments under section 4.3.2.2.1). They also share their feelings about the actual progress of feeding: how well or how badly they feel their baby is coping with solids.

In addition to their comments on a variety of indices mothers consider important in the overall progress of early solid feeding, they also comment on a wide range of more general issues. Many mothers comment on the baby's general health and his overall development. Although these two categories are not directly related to solid feeding, they nevertheless reflect mothers' concern with their baby's health and development. After all, feeding is only <u>part</u> of the baby's life. As far as feeding in general is concerned, many mothers comment on fluctuations both in their baby's appetite for specific food items and in his overall appetite (hunger). Mothers are sensitive to these fluctuations and accept them as normal in the routine of feeding (provided of

course they are transient and do not occur too often). They tend to adjust their own behaviour accordingly, knowing that the 'off phase' will soon be over. Mothers also appreciate that the pace of feeding is slower during the early days of solid feeding (see also section 4.3.1.1.2 ), since the baby needs time to get used to the taste and texture of new foods.

In addition to commenting on the baby's behaviour in relation to acceptance of tastes and appetite in general, mothers discuss their baby's conduct -his behaviour during feeding. They comment on his willingness to chew foods, to eat from and use a spoon, and to participate in feeding himself. Some mothers share their opinion on baby (manufactured) foods and feel they are not 'tasty' enough for babies- a strong indication that mothers feel their baby DOES distinguish and prefer 'pleasant' food. And although they have stressed that their baby has specific preferences and dislikes in the early stages, when it comes to choosing from baby foods, the mothers who have commented in this category tend to choose according to their <u>own</u> preferences, according to their own taste as to what 'pleasant' food is.

# Chapter Five

# Solid Feeding in the Second Year: Interviews with Mothers

## 5.1 Introduction

The main aim of this study is to obtain first-hand (interview) information from the mothers who participated in the Diary Study on: 1) their feeding strategies, i.e. the practical aspects of early solid feeding, and, 2) their attitudes and perceptions about feeding and the baby's progress in this new activity, i.e. the psychological aspects of early solid feeding.

There is a longitudinal dimension to this study: the interest is in the process of solid feeding during the first two years of the baby's life. How do mothers' feeding strategies, babies' reactions to specific foods and eating in general, and mothers' perceptions and attitudes concerning feeding develop during the first two years of this experience?

It was felt that two years is long enough for solid feeding to become more-or-less established. Hence, by following up the progress of feeding at regular intervals during this period, a detailed picture of its development could be obtained.

In the following section, the research employing interviews with mothers in the study of feeding practices will be reviewed. Some of the findings reported in this literature

have been discussed, as far as RESULTS are concerned, in detail under relevant sections in the previous chapter. These findings will be mentioned briefly once again in the following section, where the emphasis is on the METHODOLOGICAL APPROACH employed.

The work of Beal (1957) has been described in detail in the previous chapter. It was mentioned there that she interviewed mothers in order to obtain information that the present thesis considered was best acquired using diaries. In addition, mothers were also encouraged to talk about any problems they had experienced during feeding sessions. As far as the aims of the study to be reported in this chapter are concerned, this kind of information is very relevant. However, Beal's work is not very informative in this respect because 1) these more informal discussions with mothers are not reported in detail, and 2) they do not highlight the specific experiences of mothers and their babies during early solid feeding. Of interest to the present thesis are the findings on the mother's ratings of her child's appetite from 6 months to 7 years and her descriptions of his corresponding eating behaviour. There appears to be a decrease in appetite, reaching its lowest level at 3-4 years. After 4 there is a rise again, and by the age of 7 the majority of children are rated as having excellent or good appetites. This issue of mothers' ratings of the baby's reactions to early solid feeding has already been addressed in a more objective, quantitative way in the Diary Study. The present study will follow up its development on

a more qualitative level during the first two years.

Epps and Joley (1963) conducted interviews with mothers of 50 children under 6 months of age to establish how early solids are introduced to children's diets, and to try and determine some of the reasons for this early introduction. The interest of this study is primarily clinical. The results focus on the widespread practice of introducing solids to children's diets earlier than doctors advise. Epps and Joley attribute this to two factors: a) the availability of commercially-prepared baby foods and, more important in terms of the psychological interests of the present thesis, b) "the factor of maternal competitiveness in infant feeding" (p.495). The mothers of the Epps and Joley study sample two decades ago appeared to take great pride in describing the amount and variety of solids consumed by their babies. This issue was not that obvious in the present study.

As far as the aims of the present thesis are concerned, the issue of mothers' feeding practices and their commentary on early feeding experiences has received no attention at all. This was beyond the scope of the Epps and Joley study.

Eppright et al (1972) surveyed the eating habits of 2000 households with infant and preschool children in the North Central Region of the United States of America. As regards to eating behaviour, they focused on the following issues: a) Feeding in Infancy. They report results on the method of early milk feeding and the age at which various

categories of solids are introduced to children's diets. They also comment very generally on the age at which some categories of food are 'accepted' by babies. However, the discussion on this point is very limited indeed, and inadequate to enable any conclusions to be drawn. b) Frequency of Eating and Meal Patterns. Eppright et al focus on how the patterning of meals throughout the day develops as the child acquires more eating experiences. The present thesis has focused on this issue during babies' first three months on solid food. The findings have been reported in the Diary Study (see section 4.3.1.1.2 ). c) Dawdling. In this section they focus on appetite fluctuations in children as well as on more general finickiness. They report results on the prevalence of dawdling and on factors associated with it (sex of child, socioeconomic and educational level of parents, size of household, child's ordinal position among siblings and mother's nutritional knowledge and attitude to meal planning and meal preparation). They also discuss mothers' attitudes and reactions to their child's lack of appetite. The present thesis shares this interest in fluctuations in children's appetite and in mothers' reactions to, and interpretations of, these fluctuations. However, once again, it is the <u>early</u> period of the introduction of solids and how mothers perceive and interpret feeding difficulties during this period that will be its primary focus. d) Food Dislikes. This issue is dealt with very briefly. The general conclusion is that children dislike vegetables and that this dislike increases with age. The present thesis considers dislikes in more

depth. The Diary study dealt with identifying them and monitoring their short-term development. This Interview Study will follow up their development across the second year, trying to identify any general patterns of acceptance or rejection. The attitudes and feelings of mothers towards their baby's dislikes as well as their reactions to them will also be described. e) Food Energy from Candy and Soft Drinks. Although the present thesis is not interested in the caloric aspect of the consumption of sweets and in how this relates to total caloric intake (which Eppright et al discuss), it has focused on what types of food children are offered as snacks. Eppright et al also briefly report on mothers' attitudes and feelings about offering their children sweets: although mothers tend to offer them as rewards and withdraw them as punishment, 20.7% express the concern that children eat too many. Offering of sweets is associated with mother's attitude towards food preparation and father's education: 1) the less favourable the mother's attitude, the more soft drinks and candy are offered, and 2) children of highly-educated fathers are offered fewer. The study to be reported in this chapter has obtained a fairly detailed record of what foods are offered to children as snacks. Mothers seem to acknowledge that sweets are not 'good' for the children and offer savoury snacks instead.

The survey conducted by Eppright et al is very detailed and extensive in terms of the age range of the children included as well as the factors studied in relation to feeding. These factors were both of a medical nature (nutrient intake/chemical composition) and of a social/psychological

one (food included in diets and its relationship to various socioeconomic indices). However, the focus was more on giving an overall picture of the feeding/eating habits of children up to 6 years of age. The present thesis will study in more depth one specific period: the period when solids are introduced to children's diets.

Cowell et al (1973) and Maslansky et al (1974) interviewed the mothers of 469 children -mostly black and Puerto Rican, and from low income families- in New York City. Their initial aim was to discuss the infant feeding practices in this community. They also employed a pretested questionnaire to record a 24-hour recall of foods and drinks consumed by the children, and other socioeconomic and demographic data. The 87 variables on which they collected information promised to provide a large amount of descriptive data on these practices. They covered questions concerning the baby's reactions to foods, his preferences and dislikes, his general eating patterns, as well as mothers' attitudes and reactions. They also go into great detail about the ways new foods were prepared and served. However, the actual results focus mainly on the nutritional intake of the children. Although initially very promising, this piece of research seems to have drastically limited its scope of study during the process.

Oates (1973) interviewed 100 mothers of babies under 6 months of age to study early infant feeding practices. The focus was on early milk feeding, although the age at which

solids (in general) are introduced is reported as well. This is clearly a medical piece of research, interested in how the various types of milk (eg. concentrated milk feeds) affect the baby's health.

A Working Party of the DHSS Panel on Child Nutrition (1974), conducted a survey in the early 1970's to identify infant feeding practices in England, and, based on this, to make recommendations to those involved in feeding babies. The two main features of early feeding they reveal are: 1) a decrease in the practice of breastfeeding, and 2) that babies are given solid food for the first time generally before the age of three months. The Party feels that mothers offer too much (and too sweet) too soon, and express a concern about obesity in children.

As in the Eppright et al (1972) study, the main aim of this survey was to provide an overall picture of (early) feeding practices. The specific feeding strategies of mothers and their perceptions of and attitudes toward early solid feeding as well as the baby's reactions to these new exeriences has not been investigated.

Martin (1975) carried out a survey (including two interviews with each mother, one when the baby was 6 weeks and another at 4 months) on behalf of the DHSS in order to obtain 1) baseline statistics for the monitoring of the success of infant feeding practices, and 2) information on the factors influencing mothers' decisions to breast- or bottle- feed, as well as those factors that determine the

duration of breastfeeding. This latter information would help the DHSS in its attempt to promote breastfeeding. Although the primary focus of the survey was on milk feeding, some results are reported in relation to the introduction of solids.

The present study takes a more developmental perspective on mothers: it will be focusing in much greater detail on the specific tastes and textures offered to babies, and will be discussing with mothers at more regular intervals and over a longer period of time their attitudes towards feeding and the experiences they gained from it.

The work of Black (1975) has been discussed in the previous chapter with respect to the diaries she employed to study the feeding patterns of 7-8 month old babies. In addition, she interviewed the mothers of 64 infants from birth to 18 months at monthly intervals to obtain information on their feeding practices. The present thesis acknowledges the importance of the longitudinal orientation in this area of research. It is a major feature of the three methodological approaches it has employed: the Diary, the Interview, and the Microanalytic Study. However, as far as the indices of early feeding pratices are concerned, the focus of Black's work is fairly restricted: information is offered only on the timing of the introduction of solids in general, and on categories of foods (including family meals).

Auerbach (1978) interviewed 102 mothers 4 weeks after

delivery and by telephone 6 months later, asking questions about the timing of the introduction of solids, the kind of solid food introduced, and whether the baby was breast- or bottle- fed. "The aim of the study was to identify patterns of infant feeding after discharge from the hospital and whether initial decisions to breast- or bottle- feed were related to the timing of the introduction of solid food as the baby matured" (p.27). Once again, the main emphasis was not specifically on early solid feeding <u>experiences</u>. A 'psychologically' interesting observation is that "the only mothers who mentioned infant food preferences were women with breastfed babies who began solid foods with items they could feed themselves. The action of bringing food by hand to one's mouth may lessen the chance of the baby's eating beyond the point where appetite dictates" (p.30).

Once again, the period of introducing solid foods to children's diets is not studied in depth <u>as a process in itself</u>. Factors influencing its timing and general structure are investigated instead. Although the present thesis acknowledges the importance of these antecedent factors, its main focus is on the detailed study of the practical and psychological processes involved in the management of early solid feeding.

Wilkinson and Davies (1978) interviewed 50 primaparous mothers just after their babies were born, and then saw both mothers and babies at the follow-up clinic at 1, 2, 3, and 6 months. Their aim was to investigate the weaning practices of these mothers. Although this research was carried out by

MDs and published in a medical journal, it seems directly interested in the actual practices and perceptions of the mothers. Wilkinson and Davies conclude, "the decision to wean should be based more on mother's interpretations of her baby's needs than on age alone" (p.1682). One of the aims of the interviews employed by the present thesis is to highlight these "interpretations".

Harker (1979) interviewed 116 mothers of babies born during the two-year period of his study in Oxfordshire. The information gathered included details of infant feeding as well as more medical indices (eg. height, weight, etc.). Overall, this is a very briefly discussed report, oriented more towards nurses, midwives, and health visitors. The advice offered is that they give "flexible infant feeding support" (p.18) to mothers. One of the questions which is discussed with the mothers of the study to be reported in this chapter refers to their own sources of advice about infant feeding. Most seem to feel the health professionals do not offer enough support and practical help.

Martin and Monk (1980) conducted a follow-up to the Martin (1975) survey. Postal questionnaires were employed instead of interviews. Although the authors stress that on the basis of their feasibility study the postal method was suitable for the study, the view of the present thesis is that the interaction between mother and interviewer produces fuller and richer information. Nevertheless, it is acknowledged that the responsibility of abiding to the

structure of the interview plan must be the interviewer's. When interviewing people about everyday matters they are involved in both physically and emotionally, the rules have to be flexible. A good interviewer "knows" and "learns" how flexible to be and acknowledges this flexibility in his results.

As in the 1975 study, Martin and Monk's results focus mainly on early milk feeding.

In addition to the Martin and Monk (1980) survey, questionnaires have also been employed in the study of feeding practices by Arneil (1965) and Harris and Chan (1969).

Arneil (1965) carried out a survey of feeding practices in Scotland. He employed pretested questionnaires and obtained information on the feeding practices of 4365 mothers. He was primarily interested in the social and environmental (regional) factors affecting these practices. This is yet another detailed study that nevertheless does not seem to show much interest in mothers' actual strategies in introducing solids, in the processes they go through with the baby during early solid feeding.

Harris and Chan (1969) were interested in describing the infant feeding practices of mothers and then comparing them with advice offered by physicians. They accumulated 383 retrospective questionnaires of mothers whose babies were between 10 and 25 months at the time of the study. Most of their data deal with practices relating to milk feeding.

This study has also been discussed in the previous chapter in relation to its findings on the age of introduction to, and preferences for, general categories of solid food. As far as the aims of the study to be reported in this chapter are concerned, of particular interest are the sections on Feeding Problems and Maternal Advice. The major Feeding Problems reported by mothers are: 1) the baby's refusal of certain foods, 2) the mother's feeling that the baby is not eating enough, 3) the baby's physiological reaction to eating, i.e. "spitting up", 4) more "mechanical" problems relating to the baby's wanting to feed himself, and 5) more medical problems, e.g. colic.

In relation to Maternal Advice, Harris and Chan report that although most mothers had many suggestions to offer, there seemed to be only two common themes in their advice: not to force the baby to eat, and to offer solids earlier because babies usually accept them easily. These issues will be dealt with in more detail by the present thesis.

As far as the methodological approach of the present thesis is concerned, it was felt that interviewing mothers at regular intervals would provide more accurate information on their perceptions of early solid feeding than asking them to complete questionnaires. The interview has the major advantage of helping mothers to reflect on the experiences of early feeding by discussing them. In addition, interviews spaced out at short and regular intervals offer a more continuous picture of the processes involved. Mothers' memory is aided by discussing certain issues more-or-less as they arise, rather than retrospectively.

A considerable amount of research employing interviews in the study of mothers' feeding practices has been reviewed. The main points of this research can be summarised as follows:

1) The primary focus of the research reviewed has been on the practices surrounding early milk feeding and on how these influence a) the timimg of the introduction of solids and b) the general categories of solids introduced.

2) Wherever the period of the introduction of solids has been discussed, it is either not investigated in sufficient depth or results are not reported in sufficient detail to permit useful generalisations.

3) The orientation of the research is primarily medical: the interest is on how the early introduction of solids influences the baby's overall growth and development.

4) When feeding practices are discussed, they tend to refer to a) a wide age range of children, and/or b) very general feeding indices (eg. age of introduction, categories of solid food introduced, etc.). Hence, the focus is more on what a large number of mothers DO with respect to feeding, rather than on how they think and feel about the whole process.

As far as the aims of the present thesis are concerned, the following points are lacking from the literature reviewed:

1) Detailed information on how mothers actually feel about and perceive their baby's eating behaviour, as well as their relationship with the baby during early solid feeding.

2) Longitudinal data on how mothers' feeding practices, attitudes and perceptions change as the baby (and the

mother) becomes more experienced with solid feeding.

3) Longitudinal data on the development of the baby's preferences, dislikes, and eating patterns in general.

It was felt that the best way to obtain information on these issues would be to follow up the dyads who participated in the Diary Study. A very good relationship had already been established with the mothers; hence, there was a 'receptive' sample to work with. In addition, a large amount of data on the more practical aspects of the introduction of solids for these dyads had been accumulated; hence, there was a strong interest in following up their development.

It was decided to interview the mothers of the Diary Study sample at regular intervals, until their baby was 2 years old. It was felt that semi-structured interviews would provide a clear picture of both the practical (development of the baby's preferences and dislikes) and the social/psychological (mothers' feeding strategies as well as their perceptions and feelings about feeding) processes involved in early solid feeding.

It was felt that these more informal discussions with mothers would allow them to express freely their feelings and attitudes. Nevertheless, the pitfalls involved in such an exercise were not ignored: the problem of <u>interpreting</u> what the mothers say, trying not to "put words in their mouths", and trying to restrict the discussion to the specific topics of interest. However, once the researcher is aware of these pitfalls, they can more easily be avoided, and a balance can be achieved between obtaining a reliable

picture of mothers' feelings and perceptions and doing so in a friendly setting. A relaxed atmosphere is essential in helping the mothers think about the issues studied and talk about them freely. As Newson and Newson (1968) comment: "The function of this (type of) research...is to tap a rich source of information which already exists but which too often is ignored: the ordinary mother's ability to examine her own behaviour and her own feelings, and, if we only give her the opportunity, to share them with us" (p.27).

The availability of rigorous methods of coding answers to open-ended questions, i.e. content analysis (Holsti, 1968; Brislin, 1980), ensures the systematic and objective categorisation of the issues raised by the respondents.

The researcher's awareness of the problems involved in semi-structured interviews, combined with specialised methodologies to approach the coding of the answers obtained, should dissolve any apprehensions concerning the reliability of such interviews.

5.2

## Method

A series of three six-monthly semi-structured interviews was conducted by the researcher following the completion of the diary (to control for cases where the mother kept the diary for less than three months, the interviews were actually scheduled for 9, 15, and 21 months respectively, after the diary had begun). Table 5.1

Table 5.1 Seven Issues Included in the Interview Questions.

(1) Issues relating to baby's preferences and dislikes (their development and progress over time) - including questions referring to baby's reaction to new tastes.

(2) Issues concerning baby's appetite (how hungry he is; what he actually likes/prefers) and/or overall attitude to food.

(3) Issues concerning mother's policy(ies) regarding: food offered to baby; baby's rejection of specific food and/or whole meal; mealtimes.

(4) Issues concerning mother's feelings about feeding.

(5) Issues concerning comparing baby with older siblings.

(6) Issues concerning tastes of all family members.

(7) Issues concerning psychological aspects of mother-baby interaction during early solid feeding.

illustrates the six longitudinal issues included in the interview questions. An additional, seventh, issue reflects some of the more 'psychological' aspects of mother-child interaction during early solid feeding (see Appendix B for interview questions grouped according to issue).

The purpose of these interviews was to give some information on: 1) The development of the baby's food preferences and dislikes in specific and his eating patterns in general. Hence, the aim is to search for continuities and changes in these areas. 2) The development of the mother's perceptions of the baby's eating patterns and behaviour and the degree to which these perceptions vary according to changes (or continuities) in the baby. 3) The development of mother's feeding strategies and how these are influenced by the baby's behaviour. 4) Eating habits of the family and the extent to which the baby is allowed and encouraged to participate in family meals. 5) Mother's feelings and comments about feeding as well as advice she may have to offer from her own experiences. 6) Mother's perceptions of any relationship between the baby's eating patterns and behaviour on the one hand and his general temperament on the other. And, 7) the extent to which mothers consider feeding as a routine caretaking activity or a time for more 'social' interaction with the baby.

It was felt that this longitudinal study (which covered a period of almost two years) would 1) give a detailed, informative, and reliable picture of the experiences of early solid feeding for both the mother and the baby, and highlight the development of these experiences, and 2)

enable one to identify specific dyad characteristics and styles and to catalogue continuities in their development.

5.3

## Results and Discussion

As mentioned in the Method Section, the questions included in the four interviews have been grouped under seven main headings reflecting the issues they refer to. In the present section, the results of these interviews will be discussed under those headings.

5.3.1

### Issues Relating to the Development of the Baby's Preferences and Dislikes

One of the major issues in relation to early solid feeding, both for the mother and for her baby is, without doubt, the development of the baby's preferences and dislikes. Although overall babies take to novelty quite well (see Figure 4.6 and sections 4.3.2.2.1 and 4.3.2.2.2), in some cases there tends to be an initial wariness when they are presented with something new (see section 4.3.1.2.2 ). It is the mothers who are very keen to introduce their baby to a wide range of new tastes from very early on (see section 4.3.1.1.2 ). And they continue introducing new tastes during the baby's second year -albeit

at a slower rate. Just under half the babies at 18 months and just over half at 2 years had been offered a new taste sometime in the two weeks prior to the interview. Some babies (comparable numbers in interviews 3 and 4: 15% and 17% respectively) had been offered something new only two days before the interview. Hence, although by the time mothers completed the diary their baby had experienced a variety of new tastes, novelty continues to be an important part of solid feeding.

Babies' reactions to new tastes vary both among babies and across interviews. Table 5.2 shows how these reactions vary indicating the OBSERVED and EXPECTED values as well as the CHI-SQUARE for each cell (Bresnahan and Shapiro, 1966). In relation to the variation of these reactions across time, there is a significant difference in their distributions (chi-square significant at $p<.001$). Over 60% of the babies in all interviews respond to novelty either with a physiological reaction (eg. "spits food out"; "screws up his face") or with a more psychological reaction (eg. "takes it slowly"; "is wary"). As babies grow older and become more experienced in solid feeding, their reaction becomes more "psychological": babies seem to be getting more tolerant in coping with new food items. Nevertheless, even at 12 months, 28% of the babies are described by their mothers as needing time to actually "taste" the new item. Comparing the distributions of psychological and physiological reactions only, there is a significant difference across time ($p<.001$). However, when comparing interviews 1 and 2, and, 3 and 4 respectively, the only

Table 5.2 Significance of Variation of Babies' Reactions to Novelty of Food Items Across Time: Chi-Squared Test.

| INTERVIEW | CATEGORIES OF ANSWER: Physiological reaction | Psychological reaction | Reaction depends on taste and/or baby's mood | Baby indifferent/ no problem |
|---|---|---|---|---|
| | **Observed** | | | |
| 1 | 11 | 10 | 6 | 4 |
| 2 | 15 | 9 | 0 | 8 |
| 3 | 14 | 6 | 1 | 11 |
| 4 | 3 | 22 | 0 | 6 |
| | **Predicted** | | | |
| 1 | 10.6 | 11.6 | 1.7 | 7.1 |
| 2 | 10.9 | 11.9 | 1.8 | 7.4 |
| 3 | 10.9 | 11.9 | 1.8 | 7.4 |
| 4 | 10.6 | 11.6 | 1.7 | 7.1 |
| | **$\chi^2$values** | | | |
| 1 | 0.02 | 0.22 | 10.88 | 0.87 |
| 2 | 1.54 | 0.71 | 1.80 | 0.05 |
| 3 | 0.88 | 2.92 | 0.35 | 1.75 |
| 4 | 5.45 | 9.32 | 1.70 | 0.17 |

$\Sigma \chi^2 = 38.63$ : significant at $p < 0.001$ $(df = 9)$

significant result is to be found in the latter grouping ($p<.001$). Hence, the shift from physiological to psychological answers is only apparent between interviews 3 (18 months) and 4 (24 months). This strong effect influences the chi-square of the whole distribution.

During interview 1, seven mothers comment on two factors that influence their baby's reaction to new tastes: his mood, and the sensory properties of the taste offered. Having acknowledged their baby's definite preferences and dislikes, these mothers feel that his reaction to a new flavour may depend on how compatible it is with his own sensory preferences. They also accept that their baby's mood determines to a large extent his readiness and 'patience' to try something new. The chi-square scores in Table 5.2 indicate that the strong significance ($.001<p<.01$) of the right half of the table is due to significantly more mothers answering that the baby's reaction to a specific food item depends on his mood or the specific food item offered during interview 1. In subsequent interviews, this catogory appears only once.

Mothers have no difficulty in identifying their baby's specific preferences and dislikes at every interview. Figures 5.1 and 5.2 show, respectively, the preferences and dislikes mothers named in the follow-up interviews. The food items in Interview 2 have been ranked in descending order from the most liked (in the case of preferences) or most disliked (in the case of dislikes). The ranking of items in Interviews 3 and 4 have been matched to that of Interview 2. Out of the 36 mothers who participated in the

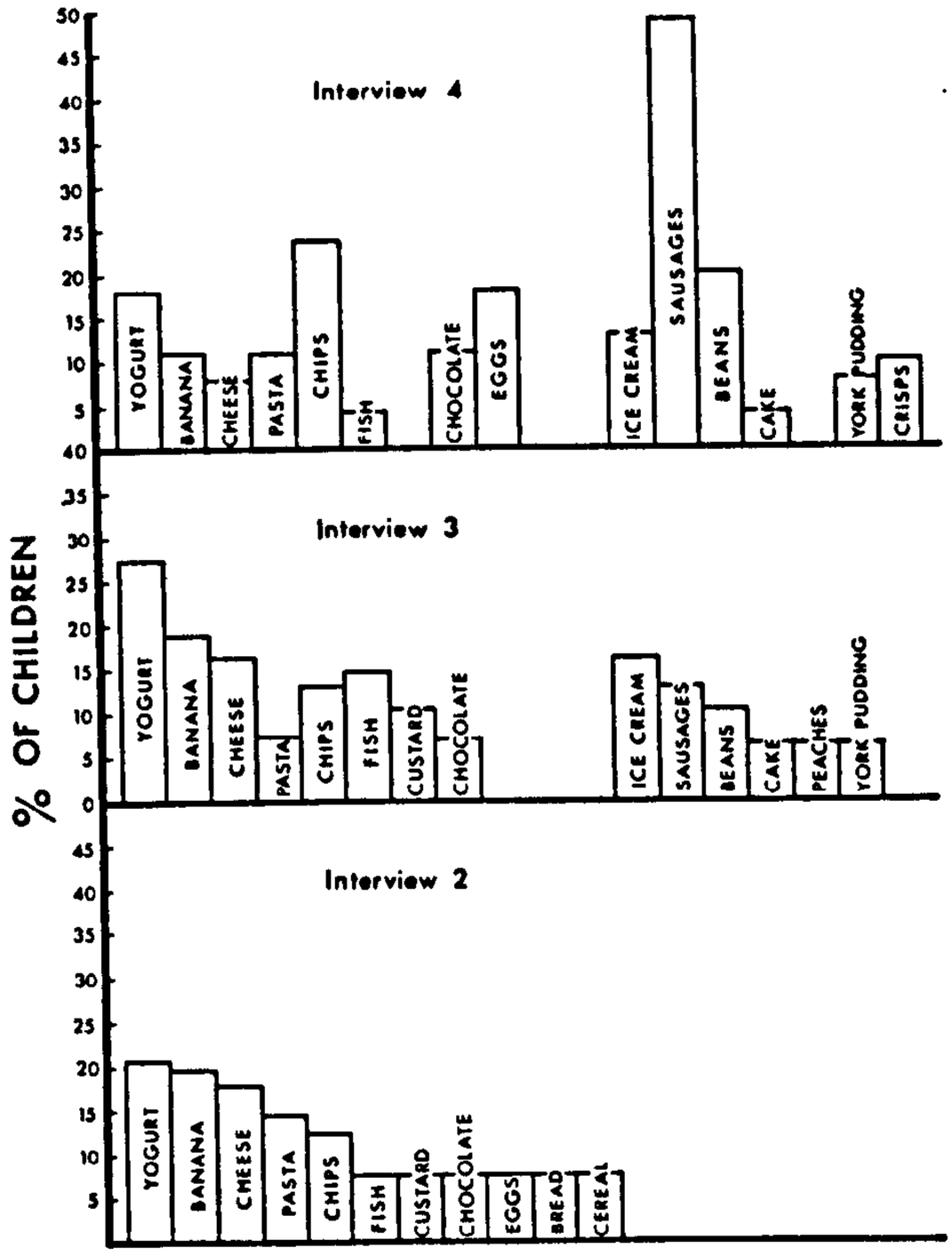



Fig. 5.1 Named Preferences Across Interviews 2,3,4.

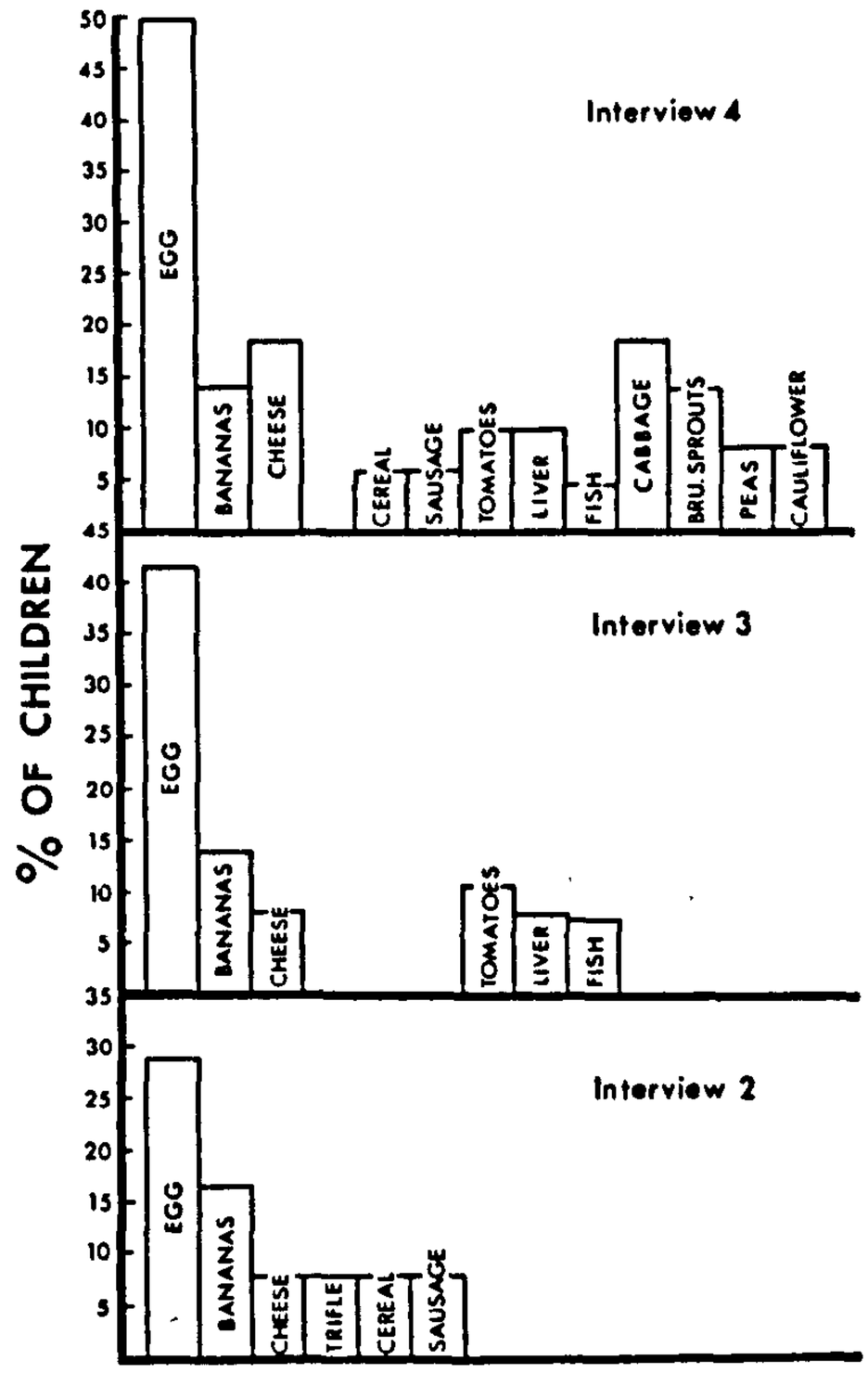



Fig. 5.2 Named Dislikes Across Interviews 2,3,4.

three interviews during which this issue was raised, only 3 said their baby had no specific dislikes and only 4 that he had no specific preferences. There appears to be a continuity across interviews in the specific food items named as likes and dislikes. It is felt that this primarily reflects the overall stability in the babies' reactions. In addition, it gives an idea of the range of food items mothers consider appropriate to offer their baby.

Babies' reactions to banana and cheese are of particular interest: they are the second and third, respectively, most preferred AND most disliked foods. One could speculate that the general baby dislikes may in fact not be that many, and that it is the 'distinctiveness' of these two tastes that includes them in both lists (of preferences and dislikes). The experiences of each baby with these distinctive tastes coupled with his own specific (sensory) preferences and dislikes may determine in which of the two lists these items will eventually be included.

The number of named preferences and dislikes increases in interviews 3 and 4, probably a reflection of the increase in the number of food items that baby has been offered. As far as the dislikes are concerned, it is apparent that for the three most frequently named ones, mothers seem to persist in offering them to the baby. Eggs, banana, and cheese are the most disliked foods named across all three interviews.

In relation to the development of their baby's preferences and dislikes during the 6-month period between interviews, most mothers said that overall there had been no major changes. In interview 3, 5 of the 24 mothers commented that

although the baby's preferences and dislikes had not changed overall, he was more adventurous in trying new tastes. One mother commented on the increase in the amount of food consumed by the baby. In interview 4, mothers seem to qualify their NO answers more. This may reflect a development in the relationship between mother and baby. The baby has gained a considerable amount of experience with solid feeding. He has tried a wide variety of tastes and has developed definite likes and dislikes. He is almost two years old and has also developed more refined and complicated means of communicating his needs and feelings. Mothers' awareness of these changes is reflected in the variety of psychological qualifications they give, especially to the NO answers. Although the baby's preferences and dislikes are more or less stable, "he has become more fussy"; "he eats only when he is hungry"; "he goes through more phases"; and "he is choosier and more determined".

Having asked the mothers the more general question on the stability of their baby's preferences and dislikes, the issue of fluctuations in preferences and dislikes was investigated. Most babies in all three follow-up interviews had developed a liking for a food item they positively disliked in previous interviews. Table 5.3 shows the distribution of YES and NO responses across time together with the OBSERVED, EXPECTED, and CHI-SQUARE values for each cell. The overall distribution of YES and NO replies does not vary significantly over time: the proportion of these two responses does not change significantly across

Table 5.3 Significance of Distribution of Yes and No Replies to the Question: "Has Baby Developed a Liking for Previously Disliked Foods?": Chi-Squared Test.

| INTERVIEW | YES | NO |
|---|---|---|
| **Observed** | | |
| 2 | 14 | 6 |
| 3 | 24 | 8 |
| 4 | 23 | 9 |
| **Predicted** | | |
| 2 | 14.52 | 5.48 |
| 3 | 23.24 | 8.76 |
| 4 | 23.24 | 8.76 |
| **$\chi^2$ values** | | |
| 2 | 0.07 | 0.05 |
| 3 | 0.02 | 0.06 |
| 4 | 0.00 | 0.01 |

$\Sigma\chi^2 = 0.28$ : not significant $(df = 2)$

interviews. Nevertheless, if one compares the total YES and the total NO replies for all 3 interviews pooled together, the YES' are significantly more than the NOs (chi-square significant at $p<.001$). In interview 4, 8 of the 27 YES responses refer to egg. As was mentioned earlier, egg is the most disliked food item across all three interviews. As far as the issue of babies 'going off' previously liked items is concerned, Table 5.4 shows the distribution of YES and NO replies across time together with the OBSERVED, EXPECTED, and CHI-SQUARE values for each cell. Most mothers (71.9%) gave a positive answer during interview 1. Their babies had gone off certain foods they used to like. The distribution between YES and NO replies varies significantly across time (chi-square significant at $p<.05$). However, this variation is due to the differences between the two responses in Interview 2 only. During interviews 3 and 4, there is an equal division between the babies who had and those who had not gone off previously liked foods.

After studying the development of preferences and dislikes for all the babies taken as a group, the focus shifted to the development of preferences and dislikes for individual babies. The results are summarised in Tables 5.5 and 5.6 respectively. These tables include information on the number of mothers who named at least one food item (preferred for Table 5.5, disliked for Table 5.6) in all three interviews, as well as the number of mothers who mentioned at least one food item <u>in common</u> across the indicated interviews (i.e. taken all three together and then in pairs).

Table 5.4 Significance of Distribution of Yes and No Replies to the Question: 'Has Baby Gone Off Food Items He Used to Like?': Chi-Squared Test.

| INTERVIEW | YES | NO |
|---|---|---|
| **Observed** | | |
| 2 | 23 | 7 |
| 3 | 16 | 16 |
| 4 | 16 | 16 |
| **Predicted** | | |
| 2 | 17.55 | 12.45 |
| 3 | 18.72 | 13.28 |
| 4 | 18.72 | 13.28 |
| **$\chi^2$ values** | | |
| 2 | 1.69 | 2.39 |
| 3 | 0.39 | 0.56 |
| 4 | 0.39 | 0.56 |

$\Sigma\chi^2 = 5.98$ : significant at $p < 0.05$ $(df = 2)$

Table 5.5 Number of Mothers Naming at Least One Preferred Food Item in Common Across Interviews.

| INTERVIEW | | | NUMBER[@] | |
|---|---|---|---|---|
| 2 | 3 | 4 | | |
| * | * | * | 7 | (26%) |
| * | * | | 17 | (63%) |
| * | | * | 6 | (22%) |
| | * | * | 13 | (48%) |

@ A total of 27 mothers named at least one preferred food item in each of the three interviews.

Table 5.6 Number of Mothers Naming at Least One Disliked Food Item in Common Across Interviews.

| INTERVIEW | | | NUMBER[@] | |
|---|---|---|---|---|
| 2 | 3 | 4 | | |
| * | * | * | 9 | (32%) |
| * | * | | 7 | (25%) |
| * | | * | 3 | (11%) |
| | * | * | 19 | (68%) |

@ A total of 28 mothers named at least one disliked food item in each of the three interviews.

As far as the preferences mothers named are concerned, of the 27 mothers who mentioned at least one preference in interviews 2, 3 and 4, 7 (26%) mentioned the same thing (among others) across all three. This figure points to some stability in preferences across the 18 month period the study covered. When considering the interviews in pairs, the results follow the expected pattern: there seem to be more preferences in common between interviews that are temporally closer, ie. interviews 2 and 3 on the one hand and interviews 3 and 4 on the other. There is a greater possibility for preferences to change during the one year gap between interviews 2 and 4 than there is during the 6 months between interviews 2 and 3, and, 3 and 4 (chi-square significant at $p<.01$ for interviews 2 and 3 vs 2 and 4; chi- square significant at $.05<p<.10$ for interviews 3 and 4 vs 2 and 4).

With regard to the continuity in the baby's dislikes, once again a considerable number of babies -just over a third- show stability for specific dislikes across interviews. And as with the stability of preferences, it tends to be greater during the 6 months between interviews 2 and 3, and, interviews 3 and 4 than during the 12 months between interviews 2 and 4 (chi-square marginally significant at $.10<p<.20$ for interviews 2 and 3 vs 2 and 4; chi-square significant at $p<.001$ for interviews 3 and 4 vs 2 and 4).

Tables 5.5 and 5.6 also enable the comparison of common preferences and dislikes, respectively, for <u>individual</u> interviews. Over half the babies seem to show at least one specific dislike common to interviews 3 and 4. This figure

is much smaller when comparing interviews 2 and 3. When tested statistically, the distribution of YES (same dislikes across all three interviews) and NO (different dislikes across all three interviews) responses was found to vary significantly across time (chi-square significant at $p<.001$). Considering the interviews in pairs, between interviews 2 and 3 there was a predominance of NO responses (chi-square significant at $p<.01$). Mothers did not feel their babies had common dislikes between the two interviews. However, this pattern became reversed when comparing interviews 3 and 4 (chi-square significant at $.05<p<.10$). Significantly more mothers mentioned at least one dislike in common between these two interviews. One could speculate that certain dislikes become more stable as the baby approaches his second year. Extending the same statistics to the preference data and comparing the common preferences between interviews 2 and 3, and, 3 and 4, no significant result was obtained. The distribution of YES (common preferences across interviews) and NO (different peferences across interviews) responses does not vary significantly across time.

The last point relating to the development of preferences and dislikes investigated was how the babies react to their preferred and disliked foods. In other words, how do babies communicate their likes and dislikes? The majority of mothers across all 3 interviews are aware of their baby's <u>different</u> reaction both to preferred and to disliked tastes. Once again, as the baby grows older, he communicates his needs and feelings in a more definite way. As far as

expressing his preferences is concerned, the baby "asks for" the preferred food; "he eats it up"; "goes mmmmm"; "grabs it"; "points to it"; "gets excited"; "dives in"; or "eats it up in complete silence". When faced with foods they dislike, most babies respond with a physiological reaction. Other ways of expressing dislike include verbal refusals; "pushes the bowl away"; "fidgets and plays around with it"; "makes a mess"; "feeds the dog". There is no ambiguity in the babies' messages, and mothers interpret them very precisely.

To summarise, babies have definite food preferences and dislikes which they communicate to their mothers very effectively. From their point of view, the mothers are very perceptive of their baby's cues as far as preferences, dislikes, and reactions to new food items are concerned, and interpret them with great sensitivity.

Although by the age of two the baby has been introduced to a wide variety of food items, mothers continue offering new foods, albeit at a slower rate. As babies grow older, their reaction to novelty becomes more and more tolerant. Physiological reactions are gradually replaced by the baby's willingness to "take time to try" new items. For some babies (roughly 25% of the sample) novelty becomes a more matter-of-fact issue during their second year. Babies' preferences and dislikes appear more or less stable during the two year period of the study. There is a considerable amount of continuity both in preferences and dislikes reported across all dyads as well as in those reported for

individual dyads.

5.3.2

## Issues Concerning Babies' Appetites and their Overall Attitude to Eating

This section deals with questions aimed at gaining some understanding of how babies feel about eating in general, in addition to their reaction to specific food items. Are there times of the day when they seem more hungry than others? Do they sometimes not feel like eating at all? Do they look forward to their meals? The focus was also on identifying some of the factors that might influence fluctuations in appetite (appetite in this context refers to overall hunger rather than to specific preferences). What are the reasons mothers give for their baby's appetite fluctuations?

Over 66% of the mothers in every interview report that their baby is more hungry/willing to eat during a specific mealtime of the day. In addition, more psychological influences on the babies' appetite are also mentioned. Some babies seem to eat more in the company of adults or other children who are eating as well. Others are sensitive to the specific feeding setting: e.g. they eat better when feeding themselves; when sitting in their high chair; etc. During interviews 3 and 4 mothers were asked if their baby had days or mealtimes when he was completely 'off' food. The majority of mothers in both interviews answered

affirmatively, and gave a variety of reasons for their baby's temporary lack of appetite. The answers in interview 3 are either YES or NO, whereas in interview 4, 27% of the answers seem to fall inbetween the two extremes (eg. "not completely"; "he might not finish his plate"; "rarely"). It is possible that, as the baby approaches his second year and eating becomes more and more a matter-of-fact, casual issue, his reactions tend, once again, to be more tolerant. Hence, although 65% of the babies in interview 4 have definite "off food" days (in comparison to 92% in interview 3), 11% are reported to be off food 'rarely', and 16% do not have complete off days but may "not finish their plate", or eat the meal "without really being interested in it".

Table 5.7 shows the categories of reasons mothers give for their baby's lack of appetite during interviews 3 and 4. Most mothers were able to give more than one definite reason for their baby's lack of appetite. The baby's general health (teething or being poorly) was mentioned by over half the mothers in both interviews. Another very common reason was that the baby was simply not hungry. Mothers accept that their baby (like most adults) may just have a day when he is not very hungry. As can be seen from the above table, mothers give a variety of reasons why their baby might be off food. All have been listed, even those made by only one mother, to give an indication of the range of factors mothers perceive as influencing their baby's appetite. Only two mothers in interview 3 and one mother in interview 4 felt they could not identify any such factor.

During interview 2 mothers were asked about their baby's

Table 5.7 Explanations of Mothers for Their Baby's Lack of Appetite.

| EXPLANATION | NO. OF MOTHERS COMMENTING INTERVIEW: 3 | 4 |
|---|---|---|
| Baby poorly/teething | 22 (61%) | 20 (54%) |
| Baby tired | 6 (17%) | 3 (8%) |
| Baby not hungry/ not bothered | 15 (42%) | 15 (40%) |
| Weather | 5 (14%) | 1 (3%) |
| Family in rush | 1 (3%) | - |
| Baby likes to say no | 1 (3%) | - |
| Baby wants attention/ is in an awkward mood | 1 (3%) | - |
| Baby has something else on mind/is over-excited | 1 (3%) | 3 (8%) |
| Baby going through a phase | 1 (3%) | - |
| Baby copies off sibling(s) | - | 1 (3%) |
| That's the way he eats/ his personality | - | 2 (5%) |
| Baby bored with food item | - | 2 (5%) |
| No specific pattern/don't know | 2 (6%) | 1 (3%) |

Interview 3: total of 36 mothers responded
Interview 4: total of 37 mothers responded

overall attitude to eating. In subsequent interviews the focus was on if and how this attitude had changed between interviews. The majority of mothers (93%) report a very positive attitude ("he loves his grub"; "he likes his belly full"; etc.). One mother reports a very matter-of-fact attitude of her baby, and two stress their baby's preferences not only for the specific food offered but also for the timing of its offering as important factors in his attitude towards food.

As far as the development of their baby's attitude to eating is concerned, mothers seem to qualify their answers much more in interview 4 than in interview 3. Once again, one can speculate that this is a consequence of the developing relationship between the mother and her baby, of their becoming increasingly 'tuned' to each other. The baby communicates his feelings and needs much more clearly and the mother 'reads' and interprets his cues in the light of her increasing experience of interacting with him. In interview 3, the majority of answers are almost equally divided between those referring to no change in the baby's attitude to eating since the previous interview (44%) and those referring to his attitude becoming more positive (39%). Between interviews 3 and 4, the general impression is that the babies' attitudes have not changed (39%). 25% of the mothers report that the baby is getting more difficult to feed because he seems less interested in food. He is also more 'moody' and more interested in other activities (primarily playing). Some mothers acknowledge that the baby 'has a mind of his own now' (ie. that he is

more independent, more determined; he 'knows' when he is full) and that this influences his attitude to eating. The common theme behind these two categories of answers is that mothers acknowledge their growing baby's personality as an important factor influencing his appetite. Three mothers attribute their baby's positive attitude to food to the fact that they themselves know by now what he likes and generally offer him the foods he prefers.

To summarise, mothers appreciate that their baby's appetite may fluctuate from day to day and from meal to meal. In addition, they offer a variety of suggestions as to the reasons they consider responsible for these fluctuations.

Mothers seem to have very clear-cut ideas about why their babies react the way they do. The most important factor mothers report is the baby's general health: mothers feel the baby may lose his appetite if he is teething or not feeling well. Psychological factors are also mentioned as important in influencing appetite: sometimes the baby is not in a mood to eat. It seems that as babies grow older, they not only become more tolerant in coping with new tastes. In addition, they seem more tolerant when it comes to overall appetite: days or mealtimes when the baby is completely "off" food become increasingly fewer and even if he is not very hungry, the baby generally attempts to eat a small amount.

Mothers report that, overall, their babies enjoy eating, and that this attitude is more or less stable across the two

year period of the study. Once again, when attitudes have changed, mothers seem to have very specific views as to why. As the baby grows older, his personality is increasingly reported as an important factor affecting his attitude to eating. Mothers refer to the baby's mood and to his 'own mind'. They seem to attribute a wide range of psychological characteristics to their baby.

5.3.3

### Issues Relating to Mothers' Policies Concerning Food Offered to the Baby, his Rejections of Food and Conduct During Mealtimes

In addition to asking mothers about the development of their baby's specific preferences and dislikes and of his overall attitude towards eating, it was felt necessary to gain some understanding of the strategies of mothers -of what they actually do, and what factors they take into consideration, when confronted with the tasks involved in early solid feeding. How do they decide what food to offer the baby? What are some of the reasons mothers give for their baby's refusals of food, and what role do these play in their decisions as to what foods to offer him? What are mothers' policies in relation to the timing of their baby's meals as well as his participating in family meals and his attempts to feed himself?

The findings concerning mothers' policies in relation to each of these three aspects of early solid feeding will now

be discussed in turn.

5.3.3.1

Policies Concerning Food Offered to the Baby

In this subsection, the answers mothers gave in interview 1 concerning the factors that influenced their decision to start giving their baby solid food have been included. After all, this decision is the first one mothers have to make in relation to feeding their baby solids.

Most of the answers the mothers gave reflect their conviction that milk feeds on their own are not enough for the baby any longer. The baby "does not sleep through the night", or,"seems hungry and unsettled". Mothers interpret these reactions as signals that the baby is ready for solids. The factors mothers report are child-centred: mothers interpret their baby's cues rather than seeking advice from other sources.

The focus will now be on mothers' policies in relation to the solids they subsequently offer their baby. Even as early as interview 2, when these babies are about a year old, most mothers offer their baby family meals. As the baby grows older, feeding becomes a much more matter-of-fact issue for both mother and child. Hence, in interviews 3 and 4 all babies are offered whatever is offered to the rest of the family (one mother qualified her statement to family meals that are appropriate for the baby: e.g. spicy food is inappropriate). In interview 3, mothers report that they

try to include the baby's own preferences as well as a varied diet when planning family meals. It may be that as the baby grows older, the 'sensory aspects' of feeding cease to be such an important issue: babies enjoy eating most things and mothers do not worry unduly about what to offer them. The baby will eat the meal prepared for the whole family. Nevertheless, mothers try to include food items that the baby has a strong preference for in the family diet. Just over 50% of the mothers in interviews 2 and 3, and 75% in interview 4, take the baby's specific preferences into consideration when planning his meals. Some mothers said that whether they offered their baby foods he prefers more often "depends on what his preferences actually are". What do mothers do when it comes to food items that the baby prefers but another member (or other members) of the family dislikes?

During interview 1, when the baby is almost 6 months old and the diary has just been completed, the majority of mothers say that they DO offer the baby such foods. 17% make the qualification that this is only the case when the preferred food is baby food and not a home-made (adult) variety. If the baby's preferred food is a baby-food variety, it is offered to him quite often. However, if it is 'adult' food which other members of the family dislike, things become more difficult for the mother who has to plan the family meals. Nevertheless, in subsequent interviews when babies are eating more-or-less family meals, 54%, 34% and 74% of mothers, respectively, do offer their baby things they themselves or other members of the family dislike. In

interview 3, 37% of mothers qualify their answer by saying their reaction depends on the specific food item and on who else likes it. If nobody else in the family seems to like it, mothers try to offer it "if he asks for it"; "if it is not difficult to make"; "if it is a special treat"; "if we are outside or in somebody else's house". Mothers are faced with the task of preparing meals for their family every day and have to consider the commom preferences of all members in planning them. The baby is treated as a member of the family participating in family meals from very early on. His own specific preferences are taken into account in the planning of meals as far as it is practical for his mother. As far as the amount of food offered to babies is concerned, most mothers offer a more-or-less set amount at each meal of the day, and from one day to the next. With breakfast, for example, if the baby seems more hungry after the meal, 58% of mothers in interview 3 and 49% in interview 4 said they would offer extra food -more of what he had already eaten- if there was some left. As babies grow older (interview 4) mothers report that they tend to ask for what they want (30%). In interview 3, 33% of mothers offer fruit or cheese in response to their baby's extra hunger. 72% of mothers who participated in interview 3 and 62% of those who participated in interview 4 said that occasionally their baby seems especially hungry just before a meal. 62% of the mothers in interview 3 respond by offering a bigger meal. This figure drops to 39% in interview 4. One could speculate that as the baby grows older, mothers wait until he has already eaten his usual meal and see how hungry he is

after that.

As far as inbetween-meal snacks are concerned, most babies have one or two a day. Although sweet things are offered quite often (58% of snacks in interview 3 and 36% of snacks in interview 4), mothers are very aware that they are not very good for the child. 38% of snacks mentioned during interview 3 and 51% of those mentioned during interview 4 are savoury or fruity ones.

5.3.3.2

Policies Concerning Babies' Rejections of Food

Mothers acknowledge that their baby has specific food preferences and dislikes. In addition, they accept that his appetite (hunger) may occasionally fluctuate. Babies have days when they are off food, when they are not as hungry as on others. How do mothers react when their baby refuses either a specific food item or an entire meal? It was felt appropriate to study mothers' answers to this question in the context of their explanations and interpretations of their baby's preferences, dislikes, and general attitude to eating. The way mothers explain and interpret their baby's reactions will no doubt influence their attitudes in responding to and coping with them.

Most mothers are willing to share their feelings on this issue. Although when the question was first asked the common reply was "I don't know" (why the baby likes or dislikes x,y,z, or why he is a good/bad eater), after some

encouragement from the interviewer, mothers seemed willing to reflect on these issues more. Their answers demonstrate their genuine concern with why their baby might have developed a particular like or dislike and why he is generally a good or bad eater. From a methodolgical point of view, it was felt that encouraging mothers to think about a certain issue is the only way to obtain information of this sort: the activities around feeding (planning meals, preparing them, and, actually feeding the baby) are very time consuming. Mothers may not have the time or the need to reflect on the more psychological processes involved. The interview setting provides the appropriate context for such reflection.

Table 5.8 shows the explanations mothers gave for their baby's preferences and dislikes, as well as his being a 'good' or 'bad' eater, across the three interviews. During interviews 2 and 3 most mothers feel both social and genetic factors are important in influencing their baby's attitude to specific food items and to entire meals. These two factors are no doubt very different. Nevertheless, they have been included under the same category label for the present purposes: sometimes it is very difficult, even impossible, to distinguish whether "he takes from his father" (in liking or disliking a specific food item) implies heredity or social identification. It is felt that the main point mothers are making is that the baby's attitude with respect to preferences, dislikes, and eating in general is influenced by his social environment and the individuals within it (Because ... "both my husband and I

Table 5.8 Explanations of Mothers for Their Baby's Preferences and Dislikes - as well as His Being a "Good" or "Bad" Eater - Across Three Interviews.

| EXPLANATION | INTERVIEW 2 | 3 | 4 |
|---|---|---|---|
| Mother's policy | 13 | 8 | 11 |
| Heredity and social influences | 18 | 26 | 7 |
| Quality/characteristics of specific food | 3 | 10 | 3 |
| Personality/ characteristics of child | 6 | 11 | 19 |
| No explanation | 1 | 3 | 2 |

are good eaters"; "I have never liked egg myself; he must take from me"; "he is influenced by his brother; he always wants to be like him").

Mothers consider their own feeding policies another important factor influencing their baby's eating attitude. 37% of mothers in interview 3 and 38% in interview 4 commented on how they feel their own practices both towards feeding and towards child-rearing in general have influenced their baby's attitude to eating (Because ... "he started having family meals very early on"; "he has never been forced to eat"; "I have always been firm and persevered"; "I gave him too many solids too soon and now he is bored"). As the baby grows older (interview 4), mothers increasingly seem to mention his own personality as the main factor influencing his eating patterns. This observation was tested statistically. Since most mothers gave more than one answer to the question, it was decided to transform the answers of each mother for interviews 2 and 4: an answer was coded as '+' if it referred to either 'mother's policy' or 'heredity and social environment' or 'quality/ characteristics of specific food' and as '-' if it referred to 'personality/ characteristics of child'. The Wilcoxon Matched-Pairs Signed-Ranks Test was performed on the indices obtained and indicated a significant ($p<.005$) result: the baby's growing independence, his having a 'definite mind of his own', determines his preferences and dislikes as well as his general attitude to food. Mothers' explanations of these issues become more and more child-centred as the baby approaches his second year.

Having discussed the reasons mothers give for their baby's attitude to eating, the focus will now be on how they respond to his refusals of both specific food items and of entire meals. Very few babies have never refused anything during one mealtime or another. Mothers tend to combine a variety of strategies in response. The majority of mothers across all interviews report that when something is refused they are likely to offer it on a subsequent occasion. 60% of mothers in interview 3 and 61% in interview 4 could not recall any item the baby had rejected and they had never tried on him again. Of the mothers who did mention such an item, 50% in interview 3 and 29% in interview 4 named egg. In interview 3, most mothers report re-offering the refused item sometime in the following fortnight. In interview 4, 29% of the mothers wait until the rest of the family is having that item again. Mothers do not generally seem particularly worried if their baby refuses a food item, nor do they have a set routine for re-offering such foods. They definitely <u>will</u> re-offer, but at a convenient time. If the baby refuses part of the meal, most mothers tend to take it away and either give the baby more of what he wants or let him continue with what is left of the meal. 36% of mothers in interview 3 and 28% in interview 4 persevere for a while and, as one mother said characteristically, "I concentrate on what he likes while still trying to persevere -maybe by disguising- with what he dislikes". Overall then, mothers seem very <u>tolerant</u> of their baby's feeding whims at this age and respond to them in the context of the eating patterns of the family as a whole. This is another reflection of the

fact that the baby participates in family meals from very early on.

5.3.3.3

Policies Concerning Conduct During Mealtimes

The last aspect of mothers' policies in relation to early solid feeding studied was that concerning conduct during mealtimes. How flexible are mothers about the timing of meals? To what extent do they allow the baby to participate in family mealtimes and to actually feed himself?

Most babies after the age of 6 months seem increasingly to have their meals with the rest of the family. Over half of the younger babies (interview 1) sit at the table with the rest of the family, either eating or just observing and participating in the 'social' activities involved in family meals.

Even as early as interview 1, mothers reported their babies being very competent in eating from a spoon when this was first introduced. 83% commented that the baby "knew what to do with it". Babies generally seem to adapt both to the new tastes and textures involved in solid feeding and to the new way of eating. It is not surprising, then, that from very early on mothers report babies attempting to feed themselves. In fact, some mothers make comments indicating that "he is too independent and will not be fed". By the time they reach their second birthday all babies feed

themselves. Most mothers nevertheless have to help their baby at some point or another. Only 16% said they never help their baby because he never accepts help. Mothers intervene when the baby needs coaxing, or when he finds it difficult to feed himself a particular food, e.g. soup. Some babies ask for help and their mothers respond appropriately.

With regard to the timing of meals, in interview 3 most mothers reported sticking to a time table to suit their everyday routine. During interview 4, 30% of mothers comment that they are more flexible in this respect than they were when the baby was younger. One could speculate, once again, that as the baby grows older and feeding becomes a more matter-of-fact part of his life, the timing of meals is allowed to fit in with the variety of activities the baby and his family take part in.

To summarise, mothers seem to have very definite ideas about the food they offer their baby as well as how to handle his rejections of food items and his overall mealtime behaviour. From very early on, babies participate in family meals: they more-or-less eat the same meals as the rest of the family and share the same mealtimes. They are very eager to feed themselves and mothers are willing to let them learn. Mothers have to plan meals for all members of the family and try and take the preferences of all -including the baby's- into consideration. They are very much interested in offering the baby things that are 'good' for him. This is reflected in their selection of snacks as

well. They tend to have a certain amount of food they offer the baby at each meal which represents what they feel he ought to have. However, they are flexible in letting the baby eat as much as he wants as well as giving him more if he is still hungry. In relation to the factors that may infuence their baby's preferences, dislikes and overall attitude to eating, mothers in general comment on the role of the social environment (including their own feeding practices) and the specific individuals within it. Babies overall tend to prefer the same food items that other members of the family prefer. Whether this is due to genetic or environmental influences is impossible to disentangle under the present circumstances. Nevertheless, the important observation is that mothers DO suppose that the baby's preferences and dislikes may be influenced by these factors. As the baby grows older, mothers increasingly mention his own personality, his growing independence, as an important factor determining his preferences and dislikes.

His refusals of either specific food items or parts of a meal are treated with firmness, understanding and tolerance. Mothers acknowledge that the baby has preferences and dislikes and that his appetite may fluctuate from day to day. Although they respect these patterns, they still try and persevere by occasionally offering the baby foods he has refused. Mothers are not unnecessarily worried by his refusals. Nevertheless, they feel that experience with certain foods might help the baby like them eventually. As the baby grows older and feeding becomes more of a routine

activity, mothers seem much more flexible both in relation to the timing of meals and the specific food items they offer the baby.

5.3.4

## Issues Concerning Mothers' Feelings About Feeding

In the previous sections, issues concerning babies' preferences, dislikes, and general appetite have been discussed as well as those concerning mothers' policies in relation to various routine aspects of early solid feeding. The questions included in the present section are aimed at encouraging mothers to share their thoughts about early solid feeding. How do mothers feel about this caretaking activity? Do their feelings change as both they and their baby become more experienced in solid feeding?

Overall, mothers seem to enjoy feeding their babies. During interview 1, 13% of mothers commented that they enjoy feeding much more now that the baby is interested in solid food than they did in the early days of solid feeding when the baby was either not interested or was 'uncoordinated'. Only 8% of the mothers express an indifferent and unreflective attitude to feeding: it is simply a caretaking task that has to be done. As the baby grows older and feeding becomes more of a routine activity for both mothers and their babies, more mothers share this indifferent attitude. Moreover, some mothers (27%) feel that as the baby grows older and becomes more independent in feeding,

feeding times interfere with other household activities as well as with mother's enjoyment of her own meal. The baby's attempts to feed himself are not always successful. His independence in feeding is not yet complete: mothers still have to look after him and offer help at mealtimes.

When mothers were asked to compare their feelings when they first started offering solids to how they felt when the baby had been having solids for just over a year (interview 3), just over half (59%) said these feelings had changed. All mothers elaborated on their answers. The main point of those who said their feelings had changed was that it was a change for the better. The babies seem more settled in their likes, dislikes and general eating patterns. Hence, feeding becomes an easier caretaking activity ("Mealtimes are quicker now". "Feeding is less work, less of a mess". "Feeding is easier now because I know what he likes and what he doesn't"). Babies are also growing to be more independent and more sociable. Hence, feeding becomes a setting for more social types of interaction ("Feeding is more interesting now". "Feeding is more fun now").

The experiences these mothers have had both from feeding and from generally looking after the baby have helped them feel more confident and relaxed in looking after him ("I am much less worried now. You always worry when they are babies". "I am less anxious now"). Mother and baby have had a long time to get to know each other during the various everyday activities they participate in. This continuing process seems to have made interactions much easier and smoother. Some mothers, although agreeing that feeding times are still

enjoyable, feel they miss their baby not being 'a baby' for very long ("I miss doing things for him now that he is independent". "He is not a baby any more. He has grown too fast").

The mothers who said their feelings towards feeding had not changed evidently never really felt feeding was an activity they thought a lot about ("I don't have a thing about food". "Never great hassle in feeding"). Some commented that although feeding was easier, their (neutral) feelings about it had not been affected.

In an attempt to examine the extent to which feeding was considered by mothers merely as a caretaking activity or as an additional occasion to get to know the baby, they were asked during interview 3 how important -if at all- feeding was in getting to know the baby. Half the answers indicated that there is nothing unique to feeding: mothers and their babies share many activities during the day, all of which contribute to them getting to know each other. The other half of the answers reflected a special closeness to the baby that mothers felt developed during feeding. Some mothers felt that the feeding setting is ideal for teaching discipline and language. In interview 4, mothers were asked to compare feeding with other caretaking activities. Mothers overall commented that in terms of being difficult or easy, most caretaking activities were very similar. 22% felt that feeding is easier than other caretaking activities. Getting the baby to bed seems to be considered overall a difficult task. Only 2 mothers felt feeding was more difficult than other activities.

As babies become more independent they try increasingly to feed themselves. How do mothers feel about any domestic chores which naturally accompany these early attempts? Most mothers accept that the only way the baby will eventually learn to feed himself like an adult is through trial and error. Babies have to experiment with feeding themselves. Any mess is seen as part of the baby's attempts and is dealt with without much stress. Most mothers just clear up afterwards. Some try to introduce methods of making the mess more manageable (eg. putting a plastic cloth under the baby's high chair, putting a bib on baby, etc.). During interview 3, 42% of the mothers gave a very "reasonable" reply: their reaction depends on their mood. Mothers are very busy both with the baby and with the other household chores they have to attend to. More mess means more work on their part. This might sometimes get too overwhelming. Only 11% of mothers in interview 4 said their baby makes no mess at all. 24 mothers during interview 3 and 37 during interview 4 were asked if they would rather not let the baby feed himself to avoid the mess but feed him instead. Only 3 mothers in interview 3 and 2 in interview 4 gave an affirmative answer. They would have liked to feed the baby themselves, "but you can't force them". 43% of mothers in interview 3 and 64% in interview 4 qualified their negative answers. The main concern of most mothers is that the baby eats his meal and enjoys it ("She wouldn't enjoy it if I fed her". "As long as he is eating, that's what matters"). 36% of mothers in interview 4 said that feeding oneself is part of development and that the baby must learn by trying. Some

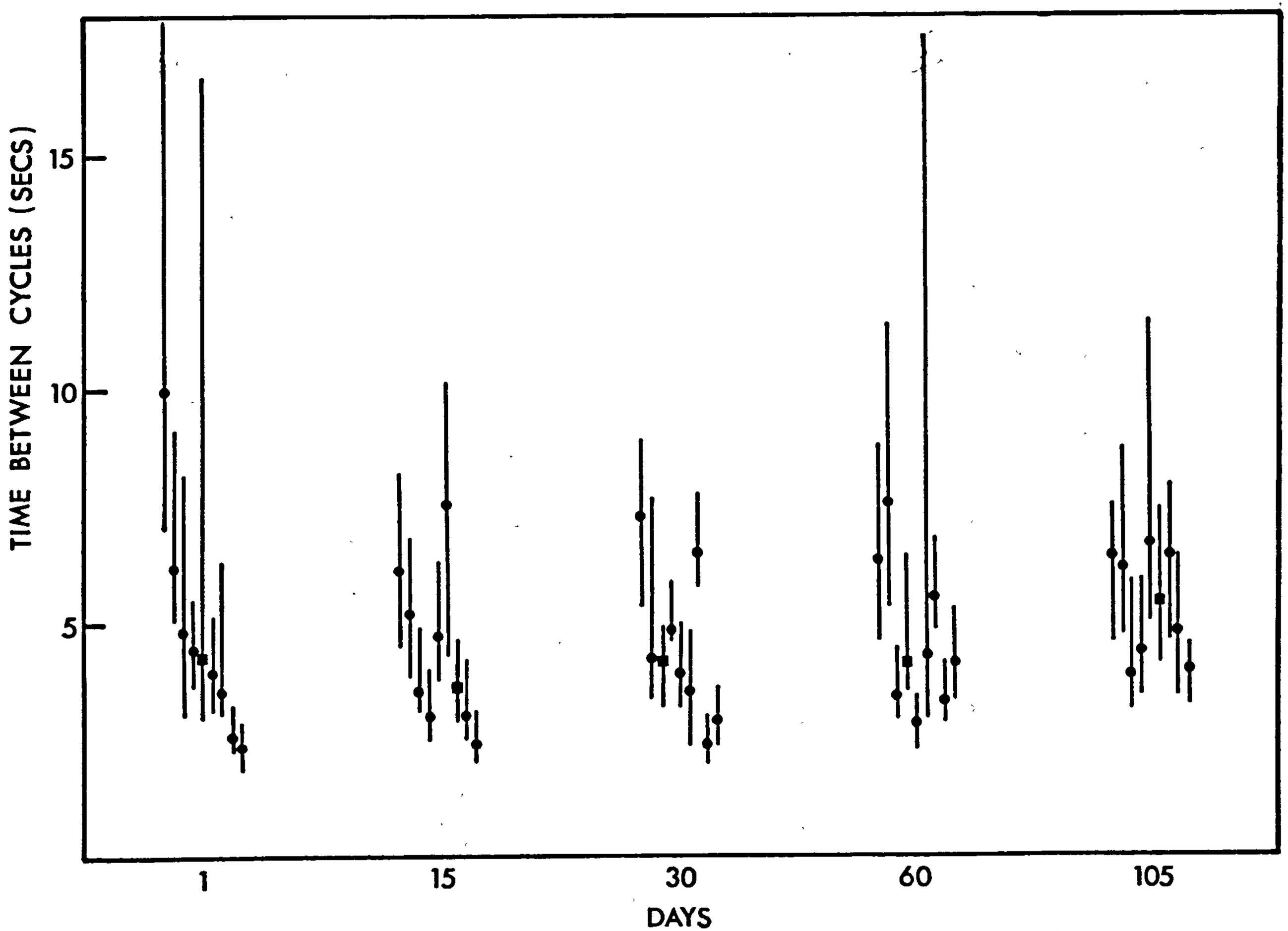



Fig. 6.5 Time Between Cycles: Median and Interquartile Range for Each Dyad Across Feeding Sessions.

mothers comment that letting the baby feed himself means they can enjoy their own meal.

Finally, mothers were asked to reflect on anything they felt they had 'learned' from their experiences of feeding the baby. During interview 1, they were asked if they felt that keeping the diary had influenced them in any way. A variety of answers was received, indicating once again that for most mothers keeping such a detailed record was not as much of a chore as one might have initially expected. Only 3 of the 39 mothers who answered this question felt the diary involved too much work, and another 3 had no comment to offer. Almost half the answers reflect the interest of these mothers in "looking back" to earlier days of solid feeding. Feeding the baby on a day-to-day basis did not make them as aware of the changes in his eating patterns as when they "looked back" a few weeks in the diary. Within the same context, some mothers pointed out that "writing things down" made them more aware and sensitive of what the baby's preferences and dislikes actually were. In addition, it helped them in varying the baby's menu, reminding them of what he had eaten recently.

In subsequent interviews, mothers were asked if they could offer any useful advice to new mothers, and whether they would do things differently if they themselves had another baby. Most mothers had a variety of thoughts to share. 40% of the comments made during interview 2 and 15% of those made during interview 3 reflected the difficulty of these mothers to produce an immediate answer ("Each mother should just get on with it". "It is very difficult to advise").

However, once encouraged most mothers gave a specific answer. A mother's general attitudes to child rearing as well as her more specific attitudes to food and feeding are the opinions most frequently exressed. Mothers feel it is very important to "listen to the baby", "follow your own experiences", "do not compare children", "do what YOU feel is right", "learn to count to 10". As far as their attitudes to feeding are concerned, mothers focus on the importance of "breastfeeding", "sticking to home-made food", "not keeping the baby waiting", "persevering and offering him things he doesn't like occasionally", "trying him with many things because variety is important in his diet", and "not panicking if they don't eat one meal" ("The more children you have the more you get to know they can survive without a meal"). 37% of the comments made during interview 3 refer to the importance of considering the individual differences among babies. All babies are different and every mother ought to consider her own baby's personality and needs when deciding what is best for him.

To summarise, most mothers <u>enjoy</u> feeding their babies. As the baby grows older and feeding becomes a more matter-of-fact activity, some mothers tend to consider feeding <u>a routine caretaking chore</u> to which not much thought is given, and which might interfere with other household activities. Most mothers feel <u>relieved</u> when their baby begins to feed himself. Despite the mess he makes, <u>they appreciate his growing independence.</u> For some it means more time for them to get on with other household activities.

For others, more interesting social interaction during mealtimes with the baby. Mothers and their babies learn a lot from and about each other during the variety of interactions they participate in together. The advice mothers offer both in relation to feeding and in relation to child rearing in general provides a clear indication of how "rich" these early interactions can be. Mothers feel they have definitely learned a lot both about the baby and about themselves.

5.3.5

## Issues Concerning Comparing the Baby with his Older Sibling(s)

The questions being dealt with in the previous sections were aimed primarily at the baby and his mother: how the baby's feeding patterns develop and how the mothers perceive and respond to these patterns. In addition, it was felt important to obtain some information on how mothers compare the baby to his older sibling(s) in relation to feeding. Does the mother's extra experience with feeding a second or third baby influence her perceptions of how easy or difficult the younger baby is? Are second and third babies perceived as being easier to feed than their older siblings were at their age?

Table 5.9 shows the answers given across the three interviews by the 20 mothers for whom the baby studied was the youngest child. These answers were compared across pairs of interviews for each dyad using the Wilcoxon

Table 5.9 Comparing Baby to Older Sibling(s) - in Terms of Feeding - Across Interviews.

| | INTERVIEW | | | |
|---|---|---|---|---|
| DYAD | 1 | 2 | 3 | 4 |
| 2 | E | E | E | E(1) |
| 3 | E | E | E | E(1) |
| 4 | S | D | S | E(2) |
| 6 | E | E | E | E |
| 7 | S | E | E | E |
| 8 | S | S | E(2) | E(1) |
| 9 | S | E | E | S |
| 10 | S | S | E(2) | S |
| 16 | S | E | E | E |
| 17 | S | E | E | E(1) |
| 18 | E | E | E | E |
| 19 | D | S | E | E(1) |
| 20* | E | - | - | - |
| 23 | E | E | E | E |
| 24 | E | E | E | E |
| 28 | S | S | E | E(1) |
| 29 | S | S | S | S |
| 30 | D | E | S | E |
| 32 | S | S | E(1)D(2) | E(1)D(2) |
| 33 | E | S | S | S |
| 35* | E | - | - | - |
| 37 | E | E | E | E(2) |
| 41 | - | E | S | S(2)D(1) |

E: Baby easier
S: More-or-less the same
D: Baby more difficult

(1): in variety
(2): in amount

* Dropped out after Interview 1

Matched-Pairs Signed-Ranks test and the chi-square. Between interviews 2 and 3, a significantly larger number of mothers ($p<.02$) felt there was no difference when comparing the baby to his older sibling(s) across time. Between interviews 2 and 4, this difference was only marginal ($.5<p<.10$). For the remaining mothers in each group who felt there was such a difference, no significant result was obtained concerning the direction of this difference.

Between interviews 1 and 2, 1 and 3, and 1 and 4, there was no significant difference between the number of mothers who felt the baby was no different from his older sibling(s) in terms of feeding and those who felt he was different. As far as the direction of difference for individual dyads across pairs of interviews is concerned, the only significant findings were those for interviews 1 and 3 ($p<.025$) and 1 and 4 ($p<.01$). It seems that as the baby grows older and becomes more settled in his eating patterns, his mother perceives him as being easier in feeding than his older sibling was at his age. This difference is particularly obvious when comparing the differences mothers mention during interviews 1 and 4: the differences increase in interview 4 in favour of the baby studied.

During interviews 3 and 4 additional information was obtained on any personality differences mothers perceived between their children. Most mothers (69% in interview 3 and 83% in interview 4) felt that the baby was more easygoing and placid. Compared to his older sibling(s), the baby is decribed as 'more happy and sociable', 'more predictable', 'not as spoiled', 'less temperamental', etc.

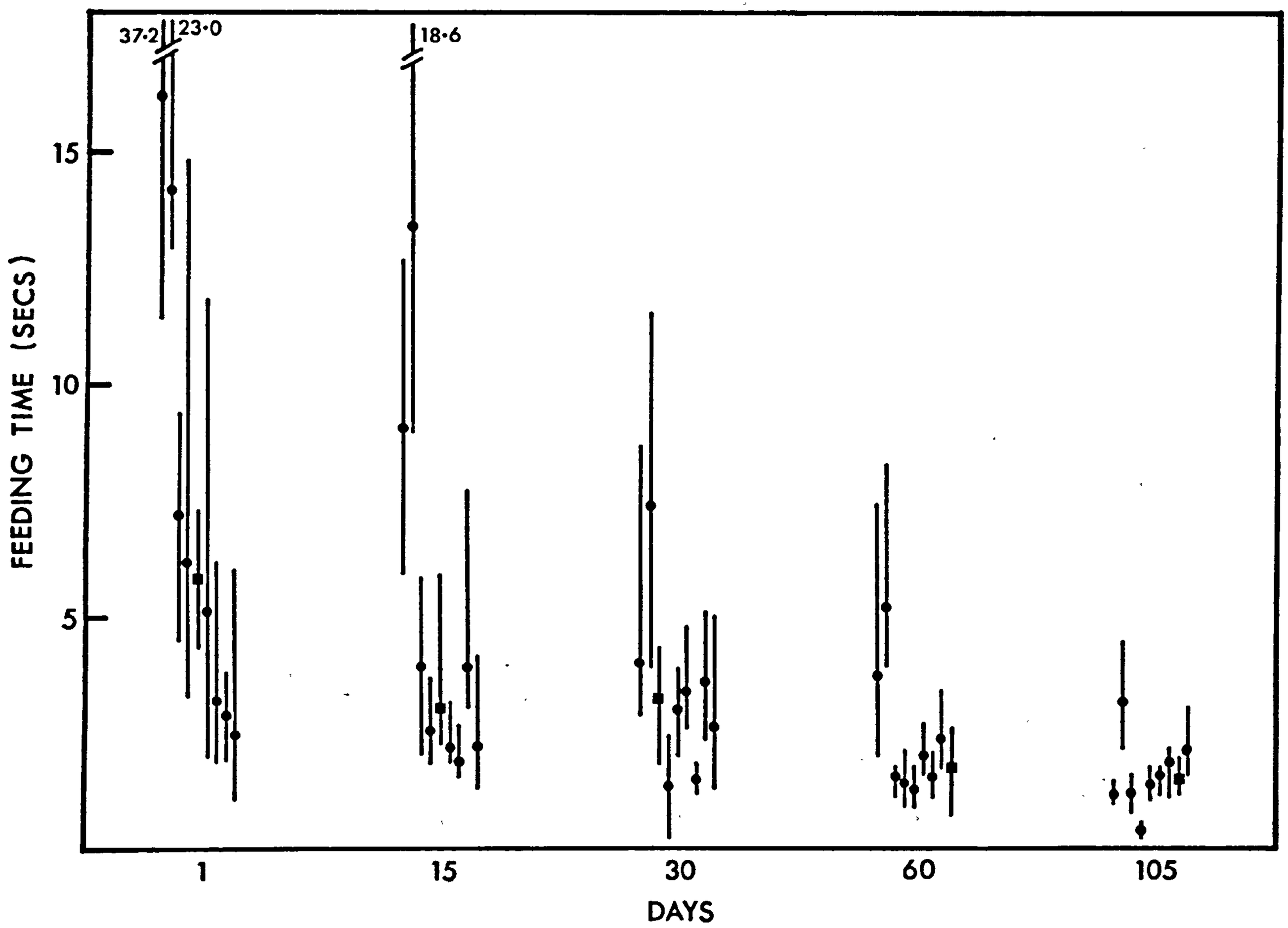



Fig. 6.4 Feeding Time: Median and Interquartile Range for Each Dyad Across Feeding Sessions.

It became evident when discussing the issues concerning mothers' feelings about feeding that mothers appreciate the benefits of their increasing experience in interacting with their baby. They become more relaxed and easygoing both about feeding and about bringing up their baby in general. Looking at those results in the light of the present findings on how mothers compare the personalities of their younger and older babies, it appears that the baby is perceived as more easygoing and placid mainly because his mother feels so much more experienced and hence relaxed than she did with her previous child(ren). Mothers' experiences with their first child (or older children) influence how they interact with their youngest baby. This in turn colours their perceptions of this baby's temperament.

To summarise, by the time most babies reach their second birthday, their mothers perceive them both as easier to feed and as easier in terms of overall temperament than their older siblings were at the same age. The increasing experiences mothers gain from interacting with their babies give them more confidence and consequently help them feel more relaxed when dealing with their younger ones. It has been suggested that the increased sense of competence in coping with their babies that mothers feel influences both the quality of their interactions and their perceptions in relation to how easy or difficult their babies are.

## Issues Concerning Tastes of All Family Members

Having established that babies participate in family meals from very early on, it was felt important to ask mothers about the feeding patterns of the family as a whole. Eating is a social occasion for most families, and it is the mother that is generally responsible for planning and preparing the meals. How does she go about planning these meals?

Table 5.10 shows the wide range of factors mothers mentioned as influencing their planning of family meals across interviews 3 and 4. These answers combine a consideration for both the preferences of the people who will share the meal with what is most practical (and economical) for the mother.

During interview 1, mothers were asked what was their own opinion on baby food. How did it taste to them? Most indicated that some baby foods (especially the sweet varieties) were 'nice', whereas others (especially the savouries) were 'bad'. Nevertheless, many mothers felt their babies actually enjoyed baby food varieties. One could speculate that at least during the early stages of solid feeding, the baby's tastes might be different from those of adults. As one mother reported, "I make a point of not tasting baby food. His tastes are different".

During interviews 3 and 4, mothers were asked about the preferences and dislikes of all family members. Were they similar or not? About half the mothers felt that all members of their family like more-or-less the same things.

Table 5.10 Factors Influencing Mothers in the Planning of Family Meals.

| FACTOR | NO. OF MOTHERS COMMENTING INTERVIEW: 3 | 4 |
|---|---|---|
| Decide on day (night before) | 19 (53%) | 17 (46%) |
| Routine: certain meals during the week | 11 (31%) | 21 (57%) |
| Routine: set meals for each day of the week | 2 (6%) | 1 (3%) |
| Economics | 4 (11%) | 3 (8%) |
| 'What is good for us' | 3 (8%) | - |
| Something to suit the children/ that baby will eat | 3 (8%) | 1 (3%) |
| Variety in diet | 7 (19%) | 5 (14%) |
| Sometimes depends on weather | 2 (6%) | - |
| Time available/family programme | 7 (19%) | - |
| What mother fancies | 3 (8%) | 5 (14%) |
| Plan for week/ variety each week | 1 (3%) | 5 (14%) |
| 'What we like' | 6 (17%) | 5 (14%) |
| Plan once a week | 5 (14%) | 4 (11%) |
| What baby and husband like | 1 (3%) | 1 (3%) |
| Within a fortnight, more or less the same things | 1 (3%) | 4 (11%) |
| Plan a couple of days in advance | 1 (3%) | 3 (8%) |
| Availability of food | 1 (3%) | 6 (16%) |

Interview 3: total of 36 mothers responded
Interview 4: total of 37 mothers responded

The other half comment on small groups of members having similar tastes (eg. Mother and Father, Mother and Baby, etc.). Nevertheless, the overall impression is one of a family that shares a wide range of common likes and dislikes. When discussing under section 5.3.3.2 the factors mothers consider important in determining the preferences and dislikes of their baby, it was stressed that the individuals in the immediate environment of the baby are seen as having a primary influence. It was also underlined that it is impossible to decide if mothers meant hereditary factors or pure environmental ones (eg. social identification). Nevertheless, for the purposes of the present study, such a distinction is not necessary. The main point to make is that the environment in its broader sense -including both individuals and social influences- may affect to a certain extent the preferences, dislikes, and more general eating patterns of these individuals. It is felt that this is also reflected in the answers mothers give to the questions concerning the preferences and dislikes of all family members.

5.3.7

## Some Psychological Aspects of Mother-Baby Interaction During Early Solid Feeding

In addition to the questions concerning feeding-related issues, mothers were asked to comment on some of the more 'psychological' aspects of their relationship with their

baby. How do they perceive the baby's temperament? Do they feel that his behaviour during feeding reflects this general temperament? Do they feel there is any specific activity they share with the baby that is more important in getting to know him? And finally, to what extent, if at all, do mothers have to adjust their behaviour to the baby's temperament?

Overall, mothers feel their babies are more-or-less 'easy'. As the baby grows older, a small number of mothers comment that he varies between being 'easy' and being 'difficult'. On approaching his second birthday, the baby is becoming "an individual with a mind of his own". The majority of mothers (92%) feel that the baby's overall temperament is reflected in all his activities, including feeding.

For just under half the mothers, there is no single activity that brings them closer to the baby. As mentioned previously when discussing where feeding stands when compared with other caretaking activities, mothers feel they get to know their baby through all the activities they share. The second most quoted answer was play. Some mothers feel that while during the caretaking activities there is <u>a task</u> to be done, during play both mother and baby enjoy interacting and getting to know each other purely for the sake of being together. Other mothers mentioned other activities, for example reading together, bathtimes, etc. This is another indication that different mothers and their babies comprise very <u>individual</u> dyads with their own specific patterns of interaction.

As far as adjusting their behaviour to their baby's

temperament, most mothers (70%) replied affirmatively. Mothers seem aware of the adjustments the baby has to make and the 'lessons' he has to learn, and are very tolerant towards his behaviour. Mothers comment on their overall change of lifestyle with the baby. For some, the change was greater than they had expected. Mothers also acknowledge that the baby is an individual in his own right, and respect his individuality. Only 6 mothers felt they had to make no adjustments at all: the baby just fitted in with the rest of the family. 5 mothers felt that adjusting was more a reciprocal process, a give-and-take, and that both baby and mother have to modify their bahaviour.

To summarise, mothers have very definite ideas about their baby's temperament and feel that it is reflected in all the activities he takes part in. Most babies are seen by their mothers as overall easy to deal with. Mothers are ready -and indeed expect- to adjust their behaviour to fit in with the baby's personality and pattern of activities. They feel that all the activities they share with their baby contribute to getting to know him better.

## 5.4

## Solid Feeding in the Second Year: A Summary

Having examined in close detail the answers mothers gave to the interview questions, it was felt appropriate to try and identify the main issues that emerged from the

accounts obtained. Four such themes have been identified, each bringing together a number of more specific issues discussed previously in commenting on the interview results.

a) Mother's Perceptions of and Response to her Baby's Specific Preferences and Dislikes as well as Overall Appetite.

It became quite obvious from the results that mothers are very perceptive of their baby's cues and respond to them with great sensitivity. Mothers seem to have very clear and definite ideas about a variety of issues concerning early solid feeding: they offer a wide range of suggestions on: 1) why their baby reacts to certain food items in a specific way; 2) some of the factors affecting his specific peferences, dislikes, overall appetite, as well as his general attitude to eating; 3) the amount of food they feel is appropriate to offer the baby at every meal, and, 4) how to handle his rejections of both specific food items and of entire meals. In addition, mothers seem very tolerant to the baby's reactions to food in general and more specifically to his rejections of particular food items. The baby is considered a member of the family from very early on as far meals are concerned. Most babies share both mealtimes and meals with the rest of the family. Nevertheless, mothers accept that the new experiences surrounding solid feeding might be initially 'difficult' for the baby. They proceed in a firm, persistent, yet understanding manner to feed him, and respond to his

rejections without undue worry. Within the general context of family meals, they will reoffer a refused food item to the baby on a subsequent convenient occasion. Mothers also appreciate that the baby can only learn to feed himself through trial and error. Hence, they are very tolerant towards his early and often 'messy' attempts to feed himself.

b) Babies' Communication of their Preferences and Dislikes.

Babies seem to be effective communicators of their preferences, dislikes, and general attitude to eating. Overall, they seem to have a positive attitude to eating. Their preferences and dislikes display a general stability across the two-year period of the study. As far as the dislikes in particular are concerned, they seem to become more and more stable as the baby approaches his second birthday. As the baby grows older, there is an obvious development in his communication of preferences and dislikes. His reactions to food become less 'violent' (less immediate and physiological). The baby is becoming more tolerant in the sense that he is willing to 'take time' to try a new item, or eat a small amount of food when not particularly hungry. In addition, his repertoire of communication skills is rapidly growing. Hence, he has more refined means (including gestures and, increasingly, language) to communicate his needs and peferences.

c) Mother-Baby Relationship during Early Solid Feeding.

Mothers and their babies share and participate in a variety of caretaking activities. Hence, they become increasingly more experienced in interacting with one another. Mothers seem to be developing a greater awareness of and sensitivity to the baby's cues. They are feeling more and more confident that they "are doing the right thing". In addition, they appreciate that they have learned a lot both about the baby and about themselves through these interactions. This increased confidence and knowledge mothers have acquired is reflected both in the nature of their interactions with their baby and in their perceptions of how easy or difficult (in overall temperament as well as more specifically in feeding) their baby is. Babies are developing into increasingly competent communicators. In addition, their more 'moderate' reactions to the environment allow more time to be spent in actually 'interacting' with the mother instead of being totally devoted to caretaking activities. For most mothers and their babies, feeding is just one of the many everyday settings which gives them an opportunity to interact. Mothers feel that their understanding of the baby comes from their joint participation in all the activities they share. As mentioned previously, the present thesis is not trying to highlight feeding as THE primary experience for mothers and their babies. Instead, the focus is on feeding as one of a variety of important caretaking activities - an activity that may provide difficulties for some dyads.

So, mothers and their babies become increasingly in tune with each other in all the activities they share. As far as

feeding is concerned, this is reflected in the qualifications mothers give to their answers: these answers become increasingly child-centred as the baby approaches his second birthday. His developing personality and 'his own mind' are considered by his mother as important factors influencing his preferences, dislikes, and overall attitude to eating, as well as her feelings towards feeding.

d) Feeding in the Broader Context of Mother-Child Interaction.

Overall, the mothers who participated in the study feel their babies are 'easy' to look after. They have easygoing temperaments which are reflected in <u>all</u> the caretaking activities mothers and babies share. Nevertheless, mothers appreciate that the baby has to cope with a variety of new stimuli and information from the world, and <u>expect</u> to adjust their behaviour to fit in with the baby's. Within the context of this general trend, each dyad seems to stand out as an <u>individual</u>. Each mother and her baby have their own style of interacting, a style that 'works' for them and which has developed out of the many interactions the two of them share daily. From the many comments mothers have shared during this study, a strong impression emerges of feeding as an occasion (albeit one of many) for the development of feelings about babies and parenthood. Although it is a caretaking activity that is inevitable, it gives many mothers yet another opportunity to gain a deeper understanding both of their developing baby and of themselves as <u>parents</u>. This latter point has not been

adequately investigated in psychological research. It is strongly felt that an in-depth study of these issues, i.e. of how parents actually develop feelings and understanding both of their baby and of themselves within the context of early caretaking activities, will produce "rich" psychological insights.

# Chapter 6

# Solid Feeding: A Microanalytic Study

## 6.1 Introduction

The main purpose of this study is to observe closely the moment-to-moment interaction between mother and baby during early solid feeding.

Detailed developmental records of the Mother's feeding practices and strategies as well as her attitudes and feelings towards feeding the baby have already been obtained. The Baby's reactions to specific tastes and textures as well as to solid feeding in general have also been considered (Diary and Interview studies). In the study to be reported in this chapter, a "microscopic" investigation of the Interaction between mother and baby as they cooperate to achieve a common goal -feeding- will be carried out. The following questions in relation to specific aspects of their interaction will be addressed: How can feeding interactions best be described in terms of the behaviours of mothers and their babies? In other words, how do synchrony and reciprocity manifest themselves in the interaction between mother and baby? What determines the 'pace' of feeding and thus its duration? How does this pace change over time? Do differences in pace have psychological implications? If one visualises feeding as a series of discrete events, is there any point in such a sequence that

appears more susceptible to vary from dyad to dyad than others? In what ways may mothers show sensitivity to the structure and organisation of their baby's behaviour (cues) and thus enhance the feeding relationship?

The common aim of these questions is to attempt to reveal individual differences among mother and baby dyads and describe the indices these differences are based on. The answers and insights obtained will hopefully enable one to clarify and elaborate on the issue of dyad profiles and of changes and continuities of these profiles over time.

Microanalytic techniques have been recently employed quite extensively by psychologists studying various aspects of Mother-Child Interaction. The most representative examples of this methodological approach have been reviewed in Chapter 2 and will only be briefly summarised in this section. Some aspects of mother-child interaction that have been studied include "the rythmic, cyclic quality of mother-infant interactional behaviour" (Brazelton et al, 1974, p.49), early play interactions (Stern, 1977), visual coorientation to objects (Collis, 1977) and the give and take in play as a precursor to the learning of the rules of language (Bruner, 1977).

The common theme behind this research is that early, everyday interactions provide a very "educational" forum for the child: he learns how to structure interactions in time; how reciprocity "works" in interactions; and, how language can be used as a means of communication.

Within this tradition, Kaye (1977) conducted the only study

to our knowledge that deals with feeding. His focus was on mother-child interaction during milk feeding. He too acknowledges a social element in this interaction: that mother and baby learn "to take turns". His techniques are very sophisticated. He made two sets of observations, one during the second day of the baby's life and another 12-18 days later. The observations were carried out by two observers, one observing the mother and the other the baby. His analysis focuses on: 1) the organization of sucking at each age, 2) the organization of mother's 'jiggling' at each age, and 3) the relationship between sucking and jiggling, and how this developed over the 2-week period of his study. He concludes that during the first two weeks of feeding interaction mothers "reduce their duration of jiggling so that there are far more short jiggles, and the behaviour basically becomes 'jiggle and stop' rather than 'jiggle until he starts sucking again'" (p.115). This behaviour is an adaptation to the sucking pattern of the infant which has, even from the early days, "a fairly regular duration separated by pauses of fairly regular duration" (p.114).

To summarise, microanalytic techniques have been employed in psychological research to study various aspects of mother-child interaction. As far as feeding is concerned, research focuses on the interaction during early milk feeding. No work has been done on the period when solids are being introduced to children's diets.

The issue of mother-child interaction during early feeding -albeit milk feeding- has been studied using other methods as well. Two such studies will be now reviewed, studies

that have a similar theoretical and methodological orientation to that of the research reported in the present thesis.

Ainsworth and Bell (1969) carried out a short-term longitudinal study on the development of mother-child interaction during the first year of life. Their main focus was on the development of attachment. However, they studied other aspects of early interaction as well. In their attempt to classify the patterns of mother-child interaction during feeding they used information from narratives of direct observations during home visits and from interviews. They identified 9 patterns of interaction which were based on 4 clusters of features: 1) the timing of feedings, 2) determination of the amount of food ingested at the end of feeding, 3) mother's handling of the baby's preference in kind of food, and 4) pacing of the rate of the baby's intake. In addition, they studied the correlations between the 9 identified patterns of interaction and 22 maternal care variables. Only 6 are discussed in their report: mother's perceptions of the baby, mother's delight in the baby, mother's acceptance of the baby, the appropriateness of mother's interaction with the baby, the amount of physical contact between mother and baby, and, the effectiveness of mother's responses to baby's crying. They conclude that, "...it is quite clear that the mother's contribution to the interaction and the baby's contribution are caught up in an interacting spiral. It is because of these spiral effects -some 'vicious' and some 'virtuous'-

that the variables are so confounded that it is not possible to distinguish independent from dependent variables" (p.160). With regard to feeding practices, they comment: "Feeding practices which have as objectives, explicitly or implicitly, both the gratification of the baby and the regulation of his rhythms...succeed in a third aim, which seems important, and that is to allow the baby to be an active participant in feeding rather than merely a passive recipient" (p.161).

As far as the aims of the present thesis are concerned, this study underlines the point that in order for feeding sessions to proceed smoothly, mothers must plan their "sequence of interventions in reasonable synchrony with the baby's rhythms, signals and behaviours" (p.161). In addition, the present thesis will be taking the study of mother-child interaction during feeding one step further, to the period when solids are introduced to children's diets. It is felt that the use of microanalytic techniques will provide a more "temporally" detailed description of this interaction, one in which the moment-to-moment synchrony and reciprocity -the contributions of both partners- is clearly demonstrated.

Dunn and Richards (1977) employed direct recording in their study that focused on identifying individual differences in mother-child interaction during the neonatal period (this was part of a larger scale 6-year follow-up study to identify continuities in interaction patterns and in individual children from birth to 5 years). One of the

aspects of early interaction they studied was (milk) feeding. Their procedures included interviews with the mother and observations of feeding sessions. They also included a diary which the mother was asked to fill in during the first ten days of the baby's life. The aim was to obtain an overall picture of early interaction; of how mothers and their babies spend their first ten days together. On the subject of early feeding, they concluded that "there was a great range of variation in smoothness of coordination and in styles of caretaking" (p.436). However, they were more interested in describing the patterns for all their dyads rather than trying to identify specific styles. Their general observation that over the first 10 days of life there seems to be a "rapid increase in coordination and adaptation" (p.452), ie. that during this period both mother and baby seem to be learning how to manage their interactions, is reflected in feeding as well: feeding interactions become smoother and more successful over this early period.

In an earlier publication referring to the whole longitudinal study, Richards and Bernal (1972) give a comprehensive account of why they decided to employ detailed observational methods: "No mother can possibly remember events at the required level of detail. Could she be expected to know how many times she smiled at her infant during a feed, and what were the stimuli evoking her smiles? Given that we believe behavioural interchanges and sequences of this kind are important and significant, and that analysis must be made at this level of fine detail,

observation is the only possible technique of investigation" (p.178).

The present thesis is in total agreement with this approach, and employs it wholeheartedly in the study of early solid feeding. However, observation using microanalytic techniques (videotapes) was preferred to direct recording by the observer (employed by Richards and Bernal): the feeling was that it would provide a more complete and detailed picture of the early interaction to be studied. Richards and Bernal (1972) favour direct recording because it is less expensive and "less disturbing to the mother" (p.182). This latter point was not considered a problem for the mothers who participated in the present study. Once the purpose of the study had been explained to them and they had established a relaxed relationship with the observer, they did not appear to feel inhibited by the portable camera. It was felt that having a record of the early feeding sessions that could be kept and referred back to over and over again, would give an overall 'flavour' of the interaction. This would then enable one to break down the sequence into its components and examine their temporal organisation.

The research reviewed clearly points out that although psychologists have studied the interaction between mothers and their babies in a variety of everyday contexts using observational methods, the context of early feeding has been obviously neglected.

The focus of the short-term longitudinal study to be reported in this chapter is on the interaction between

mother and baby during early solid feeding. Microanalytic techniques will be employed as it is felt they will 1) help the observer 'reveal' the behavioural sequences involved in the interaction, and, consequently 2) give a clear and detailed description of the interaction and its development over time. This information will hopefully provide a baseline for thinking about individual differences among the dyads studied as well as some of the factors involved in the development of specific dyad styles.

Before discussing the details of the study, let it be stressed that its primary aim is to introduce the study of early solid feeding on a microanalytic level. A great amount of effort has been put into describing the feeding behaviour of the individual dyads taking part. In addition, exploratory analysis has been carried out on some aspects of the early interaction beteen mothers and their babies during early solid feeding. And finally, suggestions have been made for further research to use both the coding system proposed and the insights gained in order to investigate more aspects of this interaction.

## 6.2 Method

### 6.2.1 Pilot Study

A pilot study was initially conducted in which 8 dyads participated (from the Durham City area -the way mothers were contacted was the same as that for the mothers in the main study and will be discussed in the next section).
The first meeting with the mother was an informal interview during which the purpose of the study and the method of obtaining the data were explained. The latter was discussed in great detail to ensure that the mother had understood that feeding sessions were to be videotaped and to assure her of the confidentiality of the process (mothers were told thay would be able to visit the Department and look at the tapes if they wished).
Two feeding sessions within a period of one week were subsequently videotaped for each dyad. The aims of this pilot phase were to: 1) familiarise the researcher with the practical aspects of the use of video equipment within a home setting, and 2) provide an initial source of insight into the sequencing of the events that constitute feeding.

6.2.2

Main Study

The Sample: The mothers who participated in the main study group were contacted through local Health Centres. However, the initiative to take part in the project was directly from them (see section B of The Sample in the Diary Study). From the cards received during the sampling period, those referring to babies who were a few weeks old were

chosen and the mothers contacted by telephone to find out if their baby had been introduced to solid food and, if so, for how long. Finally 9 dyads were selected, the criterion being how long the babies had been having solid food. The aim was to include dyads who were just beginning this new experience. For the 9 dyads, the mean interval between starting solids and the first videotaped session was 14.9 days (ranging from 4 to 20 days).

Procedure: After an initial meeting with the mother during which the purpose of the study and the method of obtaining the data was explained (see pilot study), a date for the first videotaped session was arranged ('day 1' of the observations). Dates for 4 more observing sessions (days 15, 30, 60, and 105) were tentatively arranged. Thus, 5 sessions covering a period of 3.5 months were ensured for each dyad.

Apparatus: The sessions were videotaped using a Sony Rover half-inch black-and-white portable recorder (Sony AV/3420CE) and a Sony TV camera (zoom lens 1:18 - focal length=12.5-75mm). After videotaping, the initial V-60H half-inch high-density tape was copied onto a new tape so that a running time (in tenths of a second) and date could be superimposed (with the aid of a video time and date generator VT6:33). A 21-inch TV monitor was used to analyse and code the data.

## 6.3 Information on Coding Videotapes

### 6.3.1 Introduction

The aim of studying these videotapes is to obtain some descriptive information on the interactive processes involved during the period when solid food is being introduced to babies' diets. How do mothers and babies 'communicate' during this period of new experiences? What form does this communication take and how -if at all- does it change over time? Are there any characteristics of this communication which appear to be specific to a certain dyad or dyads?

The approach employed is microanalytic: a running record of the event under observation is obtained which is then analysed using microanalytic techniques, with particular reference to the temporal organization of the units comprising the event. So within the scope of the present study, each feeding session is considered as a sequence of events (behaviours). The aim is to try and answer the following two sets of questions: a) What are these component behaviours? How can they best be described in order to reflect the actual give and take between mother and child? and b) How do these events relate over time? Is there any pattern in their sequencing? What are some of the factors influencing their temporal organisation?

In an attempt to identify the behaviours involved in early solid feeding, a method of categorisation very similar to that proposed by Richards and Bernal (1972) was employed. "...our recording categories grew out of our observations rather than being imposed on them by some pre-determined theoretical position" (p.182).

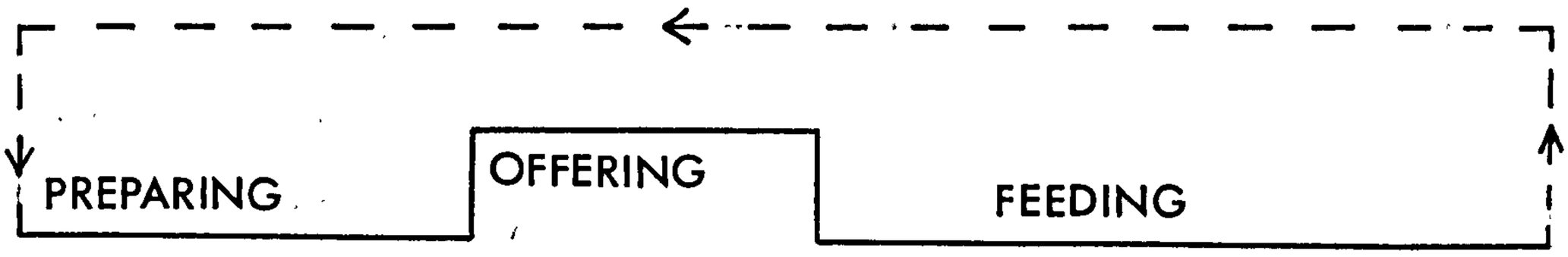
The tapes obtained during the pilot study were observed again and again to give a 'flavour' of the behaviours and interactions involved. Increased experience with these tapes began to reveal that some behaviours occurred more regularly than others. Once these behaviours had been identified, behaviour categories were defined. As Richards and Bernal (1972) comment, deciding on appropriate behaviour categories is "the most difficult part of an observational study" (p.182). This difficulty was strongly reflected in the initial stages of the present study. When defining behaviour categories, the aim of any researcher should be to decide on ones that are, 1) valid, ie. that express an underlying behaviour that is a significant component of the interaction under study, and 2) reliable, ie. that can be recorded by another (independent) observer once he has been given a detailed description/definition of these categories. As far as the present thesis is concerned, it was felt that once the observer had decided upon and felt confident that the categories proposed reflected the behaviours involved in the interaction under study, the responsibility of the validity of these categories was his own. It would no doubt be beneficial in the long term if a number of observers agreed upon what they all considered valid categories. Thus

the specific coding system could be extended to other samples apart from the one it was constructed on and researchers could then focus on and investigate other aspects of the interaction under study without having to repeat the time consuming procedure of defining categories. Nevertheless, for the practical (time limitations) purposes of research, it is considered more essential to establish the reliability of the proposed categories: it is the duty of the researcher to explain clearly what each category means, what are its characteristic features. In this way, the results of the study will be 'meaningful' for the reader.

6.3.2

Identification of Behaviours

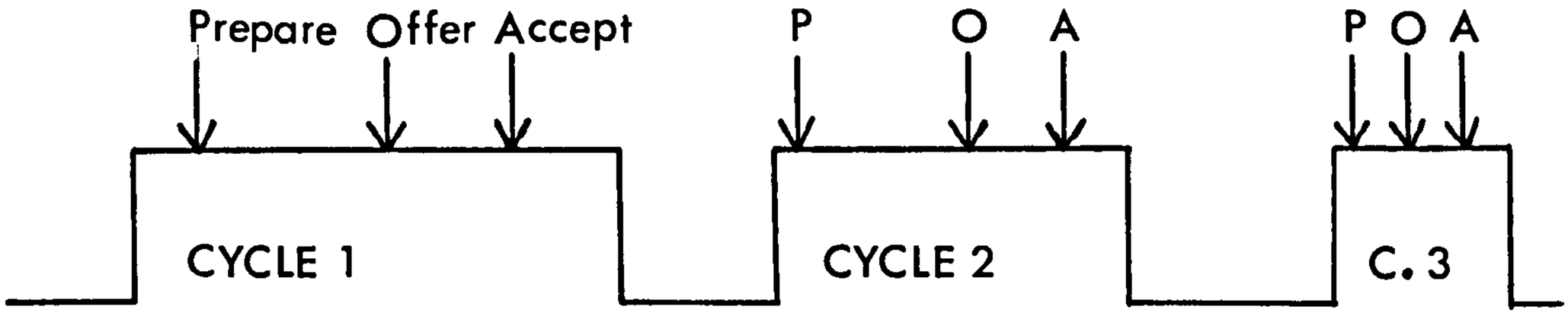
Each feeding session (a meal) is considered as a series of CYCLES. A cycle is broadly defined by the behaviours that occur around the preparation of, presentation of, and final acceptance (or rejection) by the child of one spoonful of food. In a diagrammatic form, its structure could be represented as:




In very basic terms then, feeding can be visualised as a series of offerings of spoonfuls by the mother. The final outcome is either acceptance by the child, or rejection, or

for some reason irrelevant to feeding per se, the attempt might have to be abandoned and another one started (e.g. food dropped off spoon as mother was making offer).

A diagrammatic representation of a meal would then look something like this:




Let us now return to the general diagram of an average cycle. Mother prepares the food, offers it to the child, and finally the child either eats it up or rejects it.

Within this general framework, two kinds of refinements can be observed. The one has to do with varieties of 'offer'. The other with varieties of 'pauses' that may occur during the cycle.

A. Varieties of Offer.

a) The mother might make an attempt at offering by presenting the spoon to the child at a distance ('far' offer) without actually offering directly to his mouth. This might be considered a type of monitoring: to attract baby's attention or to wait and see if he is in fact ready for the food.

b) The food is directly presented to the baby's mouth ('close' offer).

There are various ways in which these two main types of offer can be actually 'carried out' and further elaborated on:

i) Before offering, the mother might look up at the child to

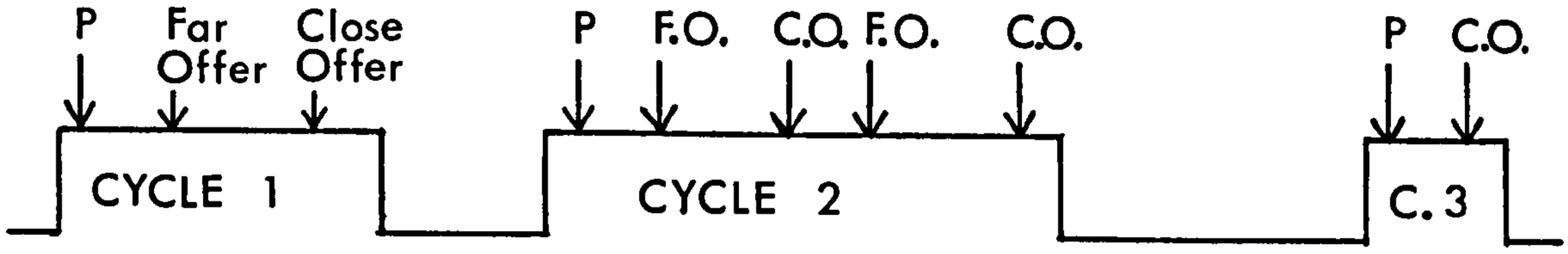
monitor if he is ready for the coming spoonful.

ii) Mother might have to alternate between the two offerings ('far' and 'close') when the child seems distracted or not interested in the food.

Once the child has accepted the food for the first time, one of two things might happen:

1) Either he eats up the spoonful, in which case the cycle ends and a new one may (or may not) be started, or,

2) He eats some of the food on the spoon, in which case mother re-offers (a or b). The child might either accept a bit more or finish the spoonful.

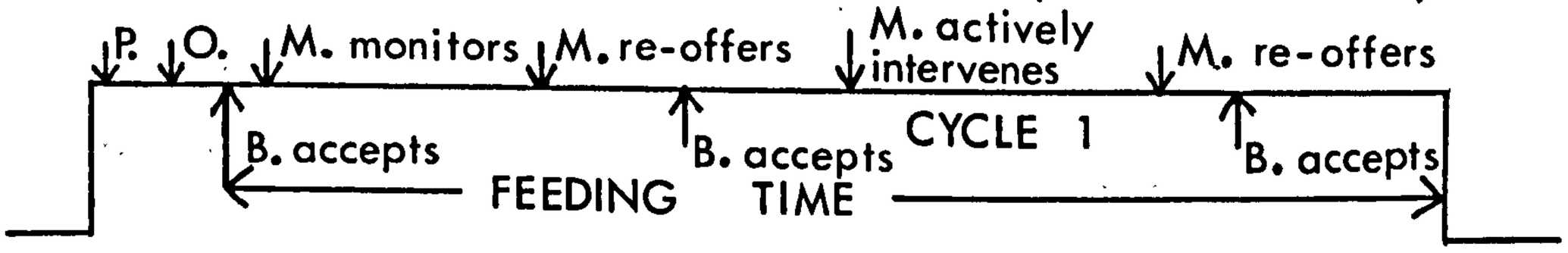



B. Varieties of Pause.

Let us define the period between the child's first acceptance of a spoonful of food and the end of a cycle as the feeding time. What are some of the behaviours that might occur within this period -apart from re-offering of food by the mother and acceptance or refusal by the child?

a) The mother might pause to monitor the child: perhaps just stopping to look at him and see how he is reacting to the food and/or to see how he feels ('Monitor Pause').

b) She might pause to actively intervene in order to comfort the baby, wipe him, and/or get his hands out of the way. The cycle can either be continued after such a pause or it may be abandoned and a new one started ('Active Pause').



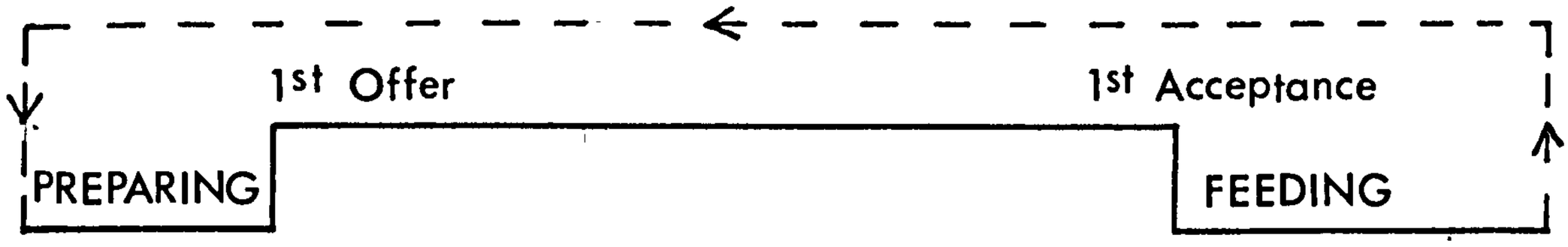
After the child has taken all the food on a spoonful (provided the cycle is a complete one), the mother might just proceed to the next cycle directly or look at the child to see how he feels about what he has eaten: i.e. monitor his reactions.

c) At any point within the cycle, a break might occur which is irrelevant to the feeding interaction: a distraction pause, as for example when the mother answers the telephone, talks to the observer or to someone else present, etc.

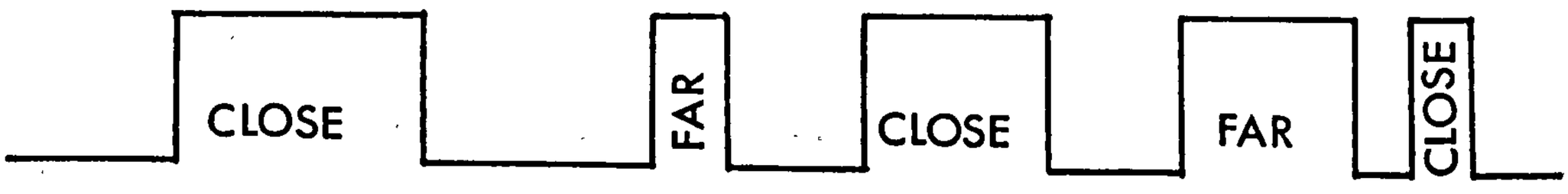
These behaviour units might occur more than once in any given cycle, and their order of occurrence will depend on the specific characteristics of the interaction between mother and child for that specific cycle.

To summarise then:

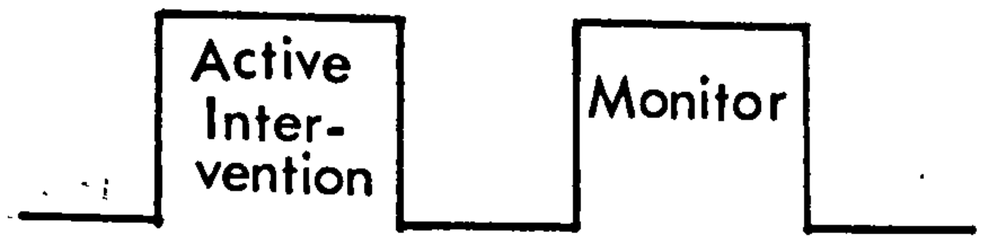
a) A feeding cycle can generally be visualised as:




b) Within offers, certain patterns of elaborations may occur:




c) Within pauses, certain patterns of elaborations may occur:



6.3.3

Coding

6.3.3.1

Definition of Behaviour Units of Cycle/ Coding Codes.

As mentioned earlier, the main aim of studying these videotapes is to describe in detail the moment-to-moment interaction of certain behaviours of mother and child during early solid feeding. The principal component behaviours involved in early solid feeding have already been described in very general terms (preparing food, offering food, feeding). In addition, some patterns of elaboration within the general framework have also been specified.

Let us now proceed to see how these behaviours are defined and coded for further quantification and statistical analysis. (Specific instructions concerning the transcribing of the behaviour units identified onto coding sheets for subsequent analysis have been included in Appendix C.1).

The behaviours which are coded refer to some act on the mother's part. Each one is written down as a code (a "labelling" code) and a time (onset time of behaviour in most cases). It is further 'qualified' or 'elaborated' with information about what the baby was doing at the time.

These behaviours are:

a) PREPARE. The point at which mother brings spoon (back)

to dish to prepare a new spoonful (e.g. she might be stirring food and/or just filling spoon with food). This unit is always the FIRST component unit of the cycle.

b) OFFER (CLOSE). Spoon (with food) is brought to such a position (offered) that it is immediately accessible to baby (ie. very close to his mouth). Brief movements away are excluded (e.g. when baby's hand momentarily gets in the way but is immediately removed either by the baby himself or by the mother's hand without her letting go of the spoon).

c) OFFER (FAR). Food presented (shown) to baby (somewhere between dish and mouth) but not immediately accessible to him.

d) FOOD in MOUTH. When spoon appears to be completely in the baby's mouth.

e) MONITORING PAUSE. Mother interrupts cycle at a certain point to look at baby (possibly to monitor his reaction) only to either resume at the point she left off or to respond to baby's signal.

f) ACTIVE (BABY RELATED) PAUSE. Mother interrupts cycle at a certain point in order to : i) comfort baby, ii) wipe baby, iii) get baby's hands out of the way. After an active pause, the cycle is continued.

g) BREAK in CYCLE (irrelevant to baby). A distraction pause irrelevant to feeding per se (e.g. mother answers telephone, talks to observer or other children present, etc.).

h) END OF CYCLE. The spoon is out of the mouth for the last time (for the present cycle - mother may have wiped baby's mouth with spoon as well). Mother may now either pause to

monitor baby's reaction or proceed to the next cycle.

6.3.3.2

Information Included in the Coded Behaviour Units

The following information is included in the coding of the behaviour units of each cycle.

i) Qualifying information included in every component unit:

a) labelling code of specific component unit (with the exception of the PREPARE category code which, because of always occuring at the beginning of a cycle, is omitted).

b) onset time (in minutes, seconds, and tenths of a second) of the specific coded activity.

c) direction of baby's attention at the onset of each activity.

ii) Information included in certain component units:

A) Pauses

a) After having prepared the spoonful and before offering it, as well as after having finished all 'mouthing activity', does mother pause to look at the child and monitor his reactions? ('close' offer, 'far' offer, end of cycle).

b) Do any 'Active Pauses' occur during the cycle? If so, what are their specific reasons?

B) Offers/Acceptance

a) Is the food presented to the baby in the direction of his midline? ('close' offer, 'far' offer, food in mouth).

b) Is the baby anticipating food by having his mouth open? ('close'offer, 'far' offer).

c) Did the baby open his mouth for the food (food in mouth), or did mother force it in?

6.3.4

Reliability

Having decided upon the coding system that was felt would best describe the interaction between mothers and their babies during early solid feeding, the issue of how reliably the subsequent coding was done had to be investigated. This was achieved by recoding a representative sample of the videotaped sessions.
A 'reliability tape' was made up, consisting of a sample session for each dyad. The sampling was done as follows: for each dyad, one feeding session (of the total of five) was chosen at random. Each of these sessions was divided in half and, through another random selection, either the first or second half was chosen for each dyad. The final ordering of these sample sessions on the tape was also done randomly. Three types of error were identified in the comparison between the coding of the reliability tape and the original

coding. Type A errors refer to the comparison of behaviour units. Have the same units been coded on both occasions? As can be seen from the two codings which are reproduced in Appendix C.2, these errors are minimal: there seems to be a high reliability in the coding of behaviour units. Type B errors refer to the comparison of the features of units. For example, for the feature 'baby's gaze', a comparison is made between the codings for the direction of baby's gaze across the two codings. A comparison of the two codings reveals that most coding errors belong to this type. The Kappa Coefficient of Reliability (Hollenbeck,1978) was performed on the most obvious errors of the Type B category. Type C errors refer to errors in the timing of behavioural units. As can be seen from the codings, these errors are insignificant.

Within Type B errors, the feature 'direction of baby's gaze' seems to have been the most 'difficult' to code reliably. The Kappa Coefficient of Reliability was performed on this feature for all sessions included in the reliability tape (see Appendix C.3). Despite the apparent difficulty in coding this feature, the results of the cross-coding were encouraging: for one tape, Kappa was "substantial to perfect" (dyad 4), for four, "substantial" (dyads 1, 5, 2, and 6), for three, "moderate" (dyads 3, 8, and 7) and for one, "fair to moderate" (dyad 9). Looking through the errors gave an indication of some other features that seemed difficult to code. These were State of Baby's Mouth for dyad 4 and Mother Monitoring for dyad 8. The

Kappa test was carried out and produced a substantial score for the former and a slight one for the latter (see Appendix C.3).

It is strongly felt that most of these errors are caused by 'technical' problems in some of the tapes. The mothers were advised to sit and feed their baby as they would normally. Their position in relation to, for example, the lighting of the room, was not controlled. However, under these circumstances of as naturalistic as possible observation, the self-reliability scores seem very high.

A great advantage of calculating the Kappa Coefficient is that it gives a very clear picture of the distribution of ALL codes during the two coding procedures. It shows, for example, that in some cases (see Appendix C.3) the observer seemed more cautious during her second coding (dyad 1), using the 'can't detect' category more often. Another advantage of this calculation is that it points to certain specific characteristics of individual dyads: For example, in dyad 1, the baby seems to direct most of his gazing 'away', whereas in dyad 5, the baby looks at 'mother' a lot (see Appendix C.3). These behavioural indices could provide very important measures of the interaction between mothers and their babies during early solid feeding.

## 6.4 Results

Before discussing in detail the results of the present

study, a general comment will be made about the statistics employed. The sample of the study is relatively small -although as mentioned previously the analysis has been done in such detail that for the present purposes a larger sample would not be practical. In addition, the study is observational and, to an extent, a pilot study: the videotapes were approached without any theoretical preconception as to their component behaviours. Hence, the nature of the parameters that eventually emerged was not known in advance. It also became obvious from the very early study of the videotapes that there was a lot of individual variation among dyads on the parameters studied. Hence, one of the aims was to study this variation in detail and to investigate how it develops both across and within dyads. It was felt that <u>non-parametric</u> statistics would deal with this type of data in the most efficient and reliable way.

The results of the microanalytic study reported in this chapter will be discussed under three headings: general group patterns, individual differences/consistencies across sessions, and individual differences within individual sessions. Before focusing on each of these headings in turn, it is felt important to make a clarifying point in relation to the parameters of early solid feeding investigated. For the purposes of the present study, the focus will be on four such parameters: total cycle time, time to first acceptance, time from first acceptance to end of cycle (feeding time), and time between cycles. Many more

parameters could be investigated, but this would be beyond the scope of this study. Having identified in detail the behaviours involved in early solid feeding interactions and proposed a scheme for coding them, the aim now is to provide an exploratory analysis on the main features of these interactions. There is great scope for further research to study more features of early solid feeding interactions, based on the coding and preliminary findings of the present study.

6.4.1

General Group Patterns

A Friedman's Analysis of Variance was performed on the medians for all dyads pooled together for the four behaviour parameters studied across feeding sessions (Figure 6.1). The aim was to look for differences in the medians across time. The results were significant for Total Cycle Time ($p<.01$), Time to First Acceptance ($p<.01$), and Feeding Time ($p<.001$). For Time between Cycles, the results were not significant. Hence, as both members of the dyad become more experienced in solid feeding, cycles tend to speed up: the baby spends less time both accepting the food and actually taking it in. Taking (accepting) and eating routines become faster. Since there is no significant change in the Time Between Cycles, one can speculate that mothers do not seem to coax or congratulate more during the early feeding sessions.

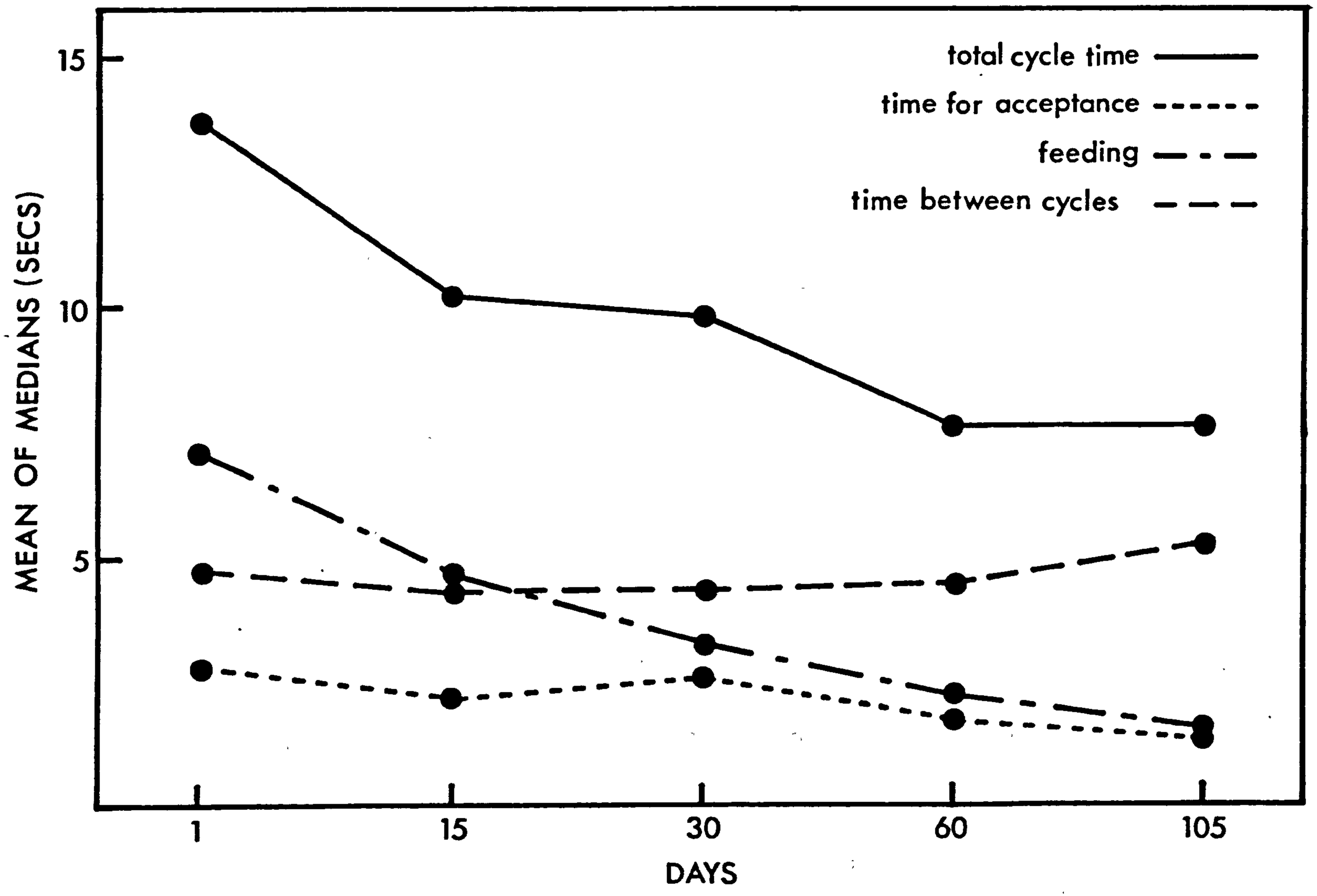



Fig. 6.1 Means of Medians of Feeding Parameters Across All Dyads.

Figures 6.2, 6.3, 6.4, and 6.5 show the median and interquartile range for each dyad across feeding sessions. (The subjects have been ranked on the parameters studied in descending order on Day 1. Their ordering on subsequent sessions remains identical to that of Day 1). Figure 6.1 gives the impression that the absolute values of the medians change over time. Nevertheless, when one considers the medians in relation to the corresponding interquartile range (coefficient of quartile deviation), the variation relative to the median does not change (Friedman's Analysis of Variance on coefficients of quartile deviations not significant). Although the <u>medians</u> do decrease across time, the <u>range time</u> also decreases.

Hence, as the dyad gains more experience in solid feeding, two features characterise the temporal structure of cycles: a) they tend to speed up, as reflected in the decrease in the absolute values of the medians of the feeding parameters studied, and b) they become smoother and more stereotyped, as reflected in the decrease in the range of the distribution of scores around each median.

6.4.2

<u>Individual Differences/Consistencies Across Sessions</u>

Kendall's W (coefficient of concordance) was performed on the medians of the three parameters (Time Between Cycles was excluded since it was found not to change across time) for each session across dyads to establish whether the dyads

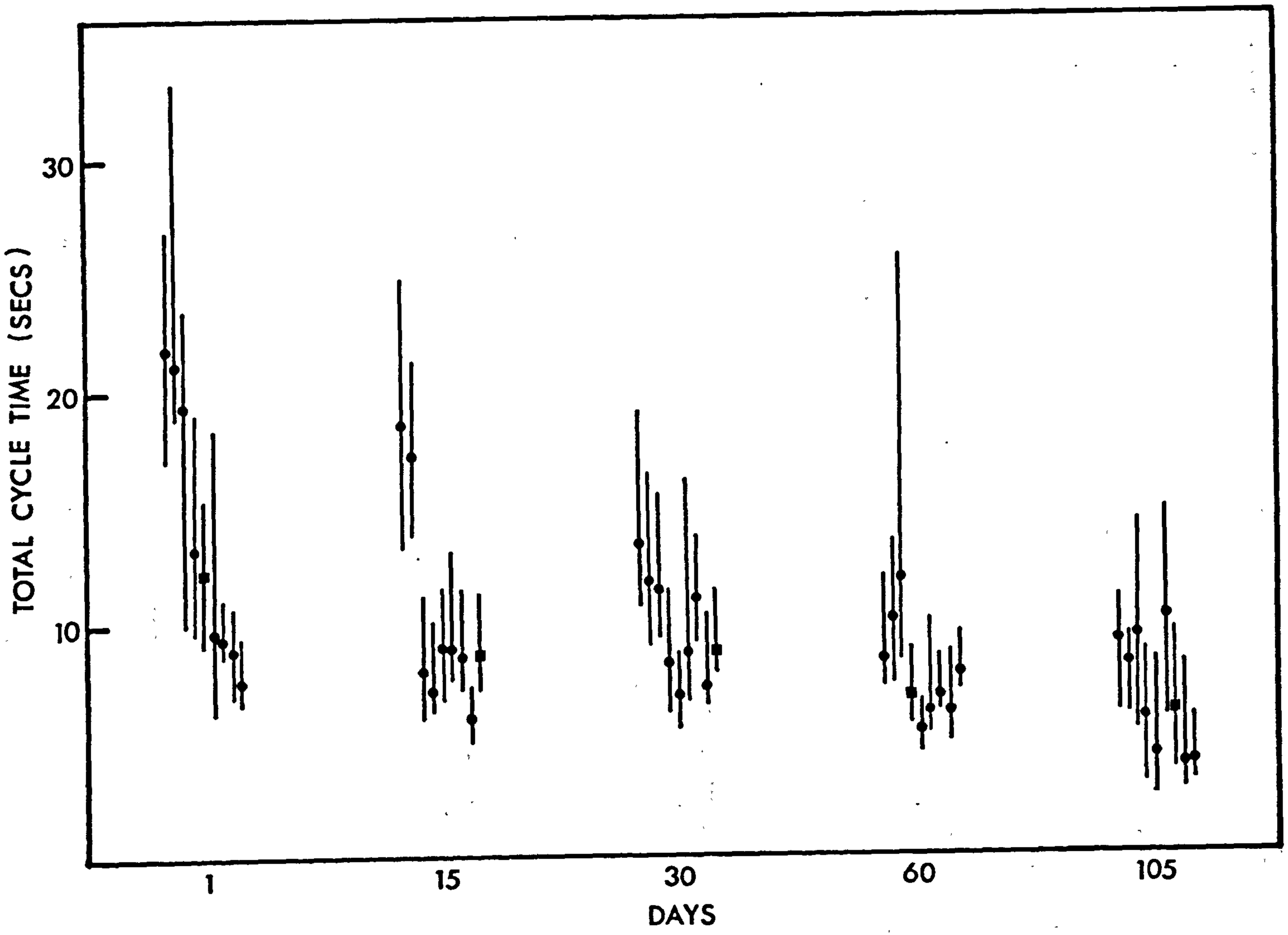



Fig. 6.2 Total Cycle Time: Median and Interquartile Range for Each Dyad Across Feeding Sessions.

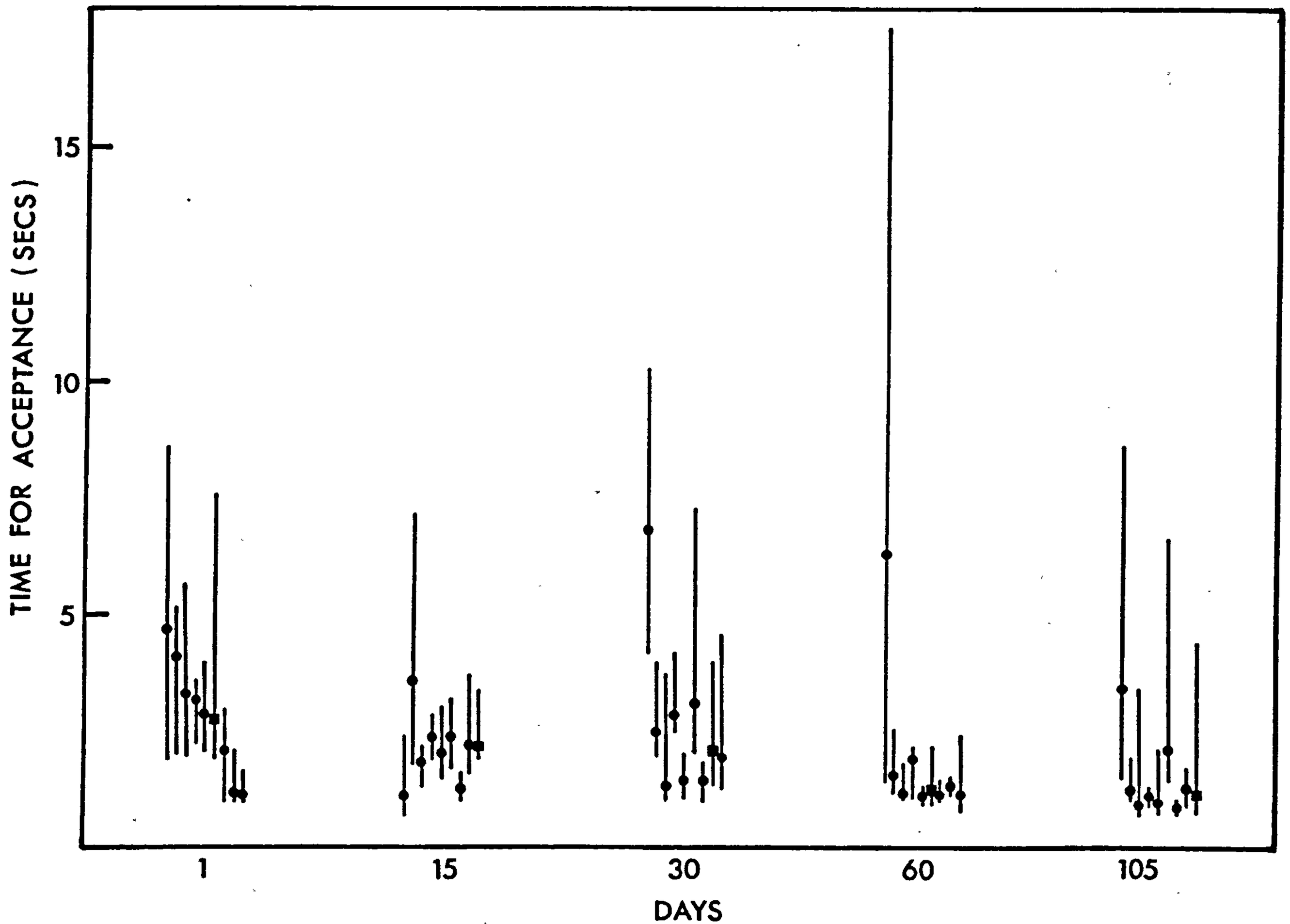



Fig. 6.3 Time for First Acceptance: Median and Interquartile Range for Each Dyad Across Feeding Sessions.

kept their ranks in relation to these parameters across time. The results were significant (for Total Cycle Time $p<.01$, for Time to First Acceptance $p<.02$, and for Feeding Time $p<.02$) and underline the issue of more-or-less consistent individual differences among the dyads. A baby that takes longer to accept food on day 1 is very likely to take longer to accept food on days 15, 30, 60, and 105.

6.4.3

Individual Differences within Individual Sessions

The aim of this analysis was to investigate whether the feeding parameters under study change within a specific feeding session for individual dyads. If the answer to this question was affirmative, there would be grounds to speculate that mothers 'use' these temporal cues as signals from their baby: for example, if Time for Acceptance became increasingly longer within a specific session for a specific dyad, one could speculate that this was a signal to the mother that the baby was getting full. A correlation (Kendall's Tau) of Total Cycle Time, Time to First Acceptance, and Feeding Time respectively against rank order of the cycle in a specific feeding session revealed no significant results. Neither the cycles nor their component units get slower as feeding progresses. As far as the baby's cues are concerned then, one could ask: what cues does he give his mother since temporal ones have been ruled out? The answer to this question is not an easy one and

requires further research. It could be that mothers rely on behavioural cues instead. This is an issue of great practical importance for research in mother-child interaction during feeding. Do some mothers 'read' these signals better than others? Do some babies 'send' clearer messages than others? How can mothers and their babies for whom feeding times are difficult be helped if indeed it is found that their interaction is not 'working' in this respect (of sending and reading signals of satiety)? Research on obesity could also be greatly assisted if this issue were investigated in depth.

To summarise, the discussion of the videotapes has focussed primarily on a detailed attempt to describe the interaction between mothers and their babies during early solid feeding. The arduous and time-consuming task of revealing the 'order' and organisation that exists in this everyday, routine activity has produced a detailed and elaborate coding system. This system proved to be a very reliable one in terms of self-reliability.

The analysis of the videotapes was aimed at giving an initial flavour of the type of psychological questions one might like to investigate in relation to early solid feeding. Many more issues could be investigated, and it is hoped that further research might undertake this task. Having established that the main temporal features of the early feeding interaction do not change within a single feeding session, one might be interested in attempting to reveal any behavioural cues that mothers pick up from their

babies as signals of satiety. Or, the interest might be in how the baby's attention is distributed within a session (a behavioural cue to the mother?), or in the strategies -both verbal and nonverbal- that mothers use to coax and congratulate the baby.

Having established the existence of dyad styles on the main parameters studied (Total Cycle Time, Time to First Acceptance, and Feeding Time), it would seem of great practical/clinical value to establish some of the characteristics of the "styles" that seem "to work" for some dyads and then continue to investigate what goes wrong for dyads with feeding problems. Although it is not <u>necessary</u> that the answer to feeding problems will be found in these early interaction patterns for ALL dyads with feeding difficulties, it is strongly felt that for <u>some</u> this may be the case.

# Chapter Seven

## Solid Feeding: Summary of an Observational Study and Experimental Implications

The main aim of this thesis has been to introduce solid feeding as a topic of psychological interest. Although psychological research in feeding dates back to the beginning of the century with the work of Freud, its primary focus has been on nursing. The research reported in the present thesis was OBSERVATIONAL in nature. Since there is no baseline from which to gain any initial insights on early solid feeding, the research has been conducted within a natural history framework in an attempt to produce a detailed description of how mothers and their babies manage the new experiences involved in early solid feeding.

The two main questions addressed have been: 1) What are some of the factors that contribute to the smoothness of the interaction during feeding? and, 2) What form does Mother-Baby cooperation (a necessary element of feeding) take, as well as how does this cooperation develop within the interpersonal event of early solid feeding? As far as the Mother is concerned, the first question explored her strategies (both practical and psychological) in feeding. As far as the Baby is concerned, it investigated his reactions (both motivational and more social/developmental) to new tastes and textures. The second question dealt with the development of the Interaction between mothers and their babies during early solid feeding.

The issues that these questions attempt to investigate are

qualitatively so diverse, that for pragmatic rather than psychological reasons they have been divided into three broad categories: Mother-Centred, Baby-Centred, and Dyad-Centred Issues. This division reflects the conviction that the issues involved in early solid feeding cannot be investigated on one single level of analysis. Hence, different methodological approaches have been employed for the study of these 'different' issues, although it must be emphasised that this does not imply that the thesis includes three independent research projects. The Baby-Centred issues have been primarily dealt with in the Diary Study, the Mother-Centred issues in the Interview Study, and the Dyad-Centred issues in the Microanalytic Study.

## 7.1 Solid Feeding: A Diary Study

The aim of this study was to accumulate a large amount of detailed and reliable descriptive information on both the 'routine' and the more 'social/ psychological' matters involved in early solid feeding. This was achieved by the use of day-by-day records that mothers kept for a period of three months from the time their baby was first offered solid food. These self-report records included: a) details of the specific kinds of food offered to the baby as well as ratings of his reactions to specific meals and entire courses, and b) mother's commentary.

Detailed analysis of these records reveals a Baby receiving

his first solids between three and four months of age. Mothers who breastfeed tend to introduce solids on average two weeks later than those who bottlefeed, a trend confirmed in the literature as well. Meal duration does not seem to change with increased experience in solid feeding, although for some dyads (38%) there is a negative correlation between the two factors. The speculation has been made that although increased experience with solid feeding might imply that meals get eaten more quickly, it might also imply larger meals, as well as more time available for 'social' activities during mealtimes. Hence, overall mealtime duration remains stable during the three-month period this study covered. For most dyads, solid feeding becomes a stable routine fairly early on as far as number of solid meals per day is concerned (3 to 4 solid meals a day within the first few weeks of solid feeding).

As far as the specific food items offered to babies are concerned, <u>novelty</u> seems a very important issue from very early on. Mothers introduce a variety of new items to the babies from the first weeks of solid feeding. The case of 'egg' in the baby's diet is of particular interest: although over half the babies have been introduced to egg by the time they are four weeks old, this item seems to remain a consistently disliked one well into the baby's second year. Suggestions as to how this observation might be studied experimentally will be made in due course (see section 7.4). In addition, mothers are very 'creative' when it comes to planning their baby's menu: <u>variety</u> is a very important element of early diets.

Mothers were very conscientious in rating their baby's reactions both to specific courses and to entire meals. Overall most meal ratings were positive, an indication that babies take to solid feeding quite well. In addition, feeding times seem to become easier in terms of children's reactions within a period of a month or so. Nevertheless, for some individual dyads, negative ratings are much more frequent. Feeding is not always an easy affair.

As regards children's reactions to individual food items, the results point to a wide range of individual differences. For 40% of the dyads there was a strong positive correlation between successive weeks of solid feeding and mean rating for food items. For most of the remaining dyads, although a definite pattern was not obvious, the correlations tended to be positive. Increased familiarity with a food item for most dyads resulted in an increase in its reported rating. However, it became apparent that some mothers stopped offering their\ baby items he had refused. Hence, the influence of increased familiarity on the baby's reaction might have been confounded. Suggestions as to how this problem may be overcome will be discussed in due course (see section 7.4).

As far as specific food items are concerned, the cases of egg, banana, and cheese have been singled out: egg because of the consistent negative ratings it has received, and cheese and banana because of their appearance on the top of both lists of likes and dislikes. One could speculate that there could be something in either the taste or texture of these items that includes them on the list of dislikes. But

how could the appearance of banana and cheese on both lists be explained? Beauchamp (1981a) discusses the possibility of two interacting factors that might contribute to the development of specific reactions: the maturing of the central and/or peripheral central nervous system, and the particular taste experiences of the individual. A longitudinal experimental study 'controlling' at least the taste experiences of the individual might help in addressing this issue (see section 7.4).

Apart from the objective information obtained from the menus, a large amount of more subjective information came from mothers' comments. In an attempt to organise the comment material, it became obvious that mothers were not only willing to share their experiences and feelings, but that, in addition their comments were of 'psychological' significance to the study of solid feeding. These comments reflect mothers' concern in understanding the causes of their baby's reactions. These causes include both factors within the baby (baby-centred) as well as external/environmental ones (other-cented). In addition, mothers are eager to describe their baby's reactions both to specific courses and to entire meals. These comments underline how sensitive and perceptive mothers are to a wide range of reactions/cues from their baby. A third broad category of comments includes mothers' reflections on their own behaviour in relation to early solid feeding. This behaviour is largely influenced by how mothers perceive and interpret their baby's signals, both more directly feeding-related and psychological ones. They describe their

policies towards a wide range of feeding-related issues. A last category of comments describes the nature of early solid feeding in general. Mothers are keen to discuss a variety of aspects of their baby's overall development in relation to early solid feeding. They tend to summarise and evaluate his progress as well as the adjustments they themselves have made in response to their baby's development.

## 7.2

## Solid Feeding in the Second Year: Interviews with Mothers

The aims of this study were to: 1) follow up the progress of early solid feeding into the child's second year, and 2) give mothers the opportunity to express their attitudes and feelings about the baby's feeding patterns and behaviour (both the practical and the more psychological aspects of his behaviour). In addition, the longitudinal perspective of the study contributed to the identification of dyad styles as well as to the study of the development of these styles over time. The mothers who participated in the Diary Study were interviewed upon completion of the diary as well as on three subsequent occasions (at six-monthly intervals). The information obtained from the semi-structured interviews revealed mothers' very definite and 'rich' ideas concerning a variety of aspects of early solid feeding. These ideas have been summarised under four broad headings: A) Mother's perceptions of and response to

her baby's specific preferences and dislikes as well as his overall attitude to eating, B) Baby's communication of his peferences and dislikes, C) Mother-Baby relationship during early solid feeding, and D) Feeding in the broader context of Mother-Baby Interaction.

Mothers seem very perceptive of their baby's cues and respond to them with great sensitivity. They are tolerant of his behaviour, appreciating that he has many new experiences to adjust to. Against this overall background of patience and understanding, feeding is considered a 'family event' and the baby participates in this event from very early on. In addition, mothers have very definite and clear ideas about: why their baby reacts in a certain way to specific food items and eating in general; some of the factors that influence his reactions; the amount of food they feel appropriate to offer him; and, the best way to handle his rejections.

As far as the Baby is concerned, he seems to be a very effective communicator of his preferences, dislikes, and attitude to eating. Overall, he seems to enjoy eating. His preferences and dislikes display a general stability across the two-year period of the study. His dislikes in particular become more and more stable as he approaches his second birthday. As he grows and develops, so does his repertoire of communication skills. In addition, his responses become less violent and more tolerant.

Mothers and their Babies participate in a variety of caretaking activities. Their increasing experience from this sharing is reflected in the synchrony and reciprocity,

the increased 'tuning in', that characterises subsequent interactions. Mothers feel strongly that their understanding of the baby comes from their joint participation in ALL the activities they share. Feeding is considered ONE such activity, an interaction that may be more important (difficult or more pleasurable) for some dyads than for others. As mothers and their babies become more experienced in solid feeding, mothers feel increasingly confident that 'they are doing the right thing' and babies become more competent in communicating their likes, dislikes, and overall attitude to eating. Mothers increasingly describe their baby as 'having a mind of his own', and feel that his growing personality is an important factor influencing his attitude to eating.

Mothers feel that, overall, their baby is easy to look after, and that his general temperament in reflected in ALL the caretaking activities they share. In addition, they appreciate and, indeed expect, that they themselves will have to make adjustments to help the baby cope with the variety of new stimuli and information he is faced with. Against the background of this general trend, the issue of individual differences among dyads stands out as a major feature of these early interactions. Each mother and her baby develop an individual style of interacting -the outcome of the many activities they jointly participate in. The common characteristic of all these styles is that each one seems to 'work' for the particular dyad that adopts (and has developed) it.

7.3

## Solid Feeding: A Microanalytic Study

The main aim of this study was to investigate the moment-to-moment interaction between mothers and their babies during early solid feeding. How do mothers and their babies manage these early sessions? What form or forms does their cooperation take? Five feeding sessions covering a period of 3-5 months were videotaped for each of nine dyads. The tapes were studied using microanalytic techniques, the most informative and efficient method of gaining some understanding of social processes at a fine-grained level. Before attempting to describe the interaction between mothers and their babies, the first, necessary step was to devise a system -a coding scheme- that would identify the behaviours involved. The coding scheme developed was used for some preliminary analysis on four basic feeding parameters: total cycle time, time for acceptance, time for feeding and, time between cycles. The results indicated that overall, as both mother and baby become more experienced in feeding, feeding cycles tend to speed up. The baby takes less time both to accept the food and to eat it up. In addition to the decrease in the absolute values of the parameters studied, the range time of these parameters for each dyad decreases as well: feeding sessions tend to become more stereotyped for individual dyads. The issue of fairly stable individual differences among the dyads emerged very strongly from the results: dyads tend to retain their relative ranks on the parameters

studied. The issue of differences within individual feeding sessions for individual dyads was also investigated. The results indicated no changes in the temporal structure (duration) of the parameters involved.

This study opens the field for more extended and in-depth analysis of mother-child interaction during early solid feeding. Some suggestions for further research will be made in the next section.

## 7.4 Suggestions for Further Research

The methodological approaches employed in the study of early solid feeding reported in the present thesis as well as the findings that emerged have been briefly discussed. It has been stressed that the primary aim of the study was descriptive, a necessary step in a field that has been researched very little. Many insights and 'new' research questions have emerged from the study. It is strongly felt that the only way to approach their thorough and in-depth analysis is by employing Experimental Methods. In the following section, some suggestions for such studies will be made.

When discussing the Diary Study, the need for a more experimental approach became evident in relation to two issues: 1) How can one account for the specific cases of egg, banana, and cheese? and 2) How can one obtain a 'true'

developmental picture of babies' reactions to specific -and in particular, disliked- food items?

As far as the first issue is concerned, Beauchamp's (1981a) suggestion of two interacting factors -the maturing of the central and/or peripheral nervous system and particular taste experiences- that influence the development of preferences and dislikes was considered. Since it is impossible to directly control the former, a longitudinal experimental study might consider monitoring the taste experiences of a group of babies ('normal' and of more-or-less the same age and state of health). The history of the babies' reactions would have to be studied from the first day the specific item was offered and on all subsequent offerings. The conditions surrounding the feeding sessions should be monitored as well: the mother's health/mood, the baby's health/mood, details of the environment (e.g. presence of other people), and any other factors the experimenter felt were relevant features of the setting. The aim would be to obtain a detailed description of children's <u>specific</u> <u>environmental</u> <u>experiences</u> in relation to specific food items. Is there any relationship between these experiences and children's subsequent reactions to the specific items? There is one factor in particular that must be controlled. It became obvious when studying the development of children's reactions to specific food items that mothers tend to stop offering the baby things he has refused (as far as the Diary was concerned. In the Interviews, mothers comment that they do tend to re-offer the baby items he has refused. However, this re-offering

does not follow any particular pattern; mothers will re-offer but at a time convenient to them). The experimenter would have to ensure that all babies are offered the specific food item as often and within the same time intervals. Mothers would be requested not to drop disliked foods. One could take the control of environmental variables one step further (although this would no doubt cause practical problems) and suggest that all babies are offered the same food items, prepared in the same way, as often, and within the same time intervals. Ashbrook and Doyle (1985) conducted a more experimental study along these lines, investigating infants' acceptance of "strong" and "mild-flavoured" vegetables. With reference to the specific examples of egg, banana, and cheese then, one could ask: in what way do the particular taste experiences of the children who like these items differ from those of the children who dislike them? As far as the developmental history of children's reactions to food items in general is concerned, one could extend the approach to apply to any specific item.

It became apparent from the Interview Study that mothers are very willing to share their strategies, attitudes and feelings concerning a wide range of issues relating to early solid feeding. In addition, mothers seem to attribute a wide range of psychological characteristics to their baby. Both during informal discussions and in the course of the interviews, mothers describe their baby as easygoing, sociable, happy, placid, 'with a mind of his own', etc. How do mothers make these decisions about their baby's temperament? What cues do they respond to most? How do these attributions influence subsequent interactions with

the baby? It is strongly felt that the answers to these questions have very important implications for the smooth interaction of mothers and their babies. Once it has been established how these attributions develop for mothers and babies with more-or-less well established relationships, one could investigate what has gone wrong for dyads where there seems to be a mismatch between cues sent by the baby and their interpretation by the mother. With specific reference to early solid feeding, one could ask how do mothers of 'easy' children respond to specific cues from their baby? In what way are the cues of 'difficult' babies different? How do their mothers respond to them? Although social psychologists have shown a great interest in Attribution Theory in relation to adults, developmental psychologists have not extended this interest to early mother-child interaction.

Through interacting with their babies in a variety of everyday contexts, parents develop strong feelings about what parenthood is all about. It is felt that these feelings are very important in giving parents the confidence that they are doing what is best for their child, that they are 'doing their job properly'. It became obvious from the interviews that mothers feel an increased sense of competence as they become more experienced in interacting with their babies. This issue should be studied in more depth to give an indication of exactly how this feeling develops. What makes a parent feel he is competent? How can parents be helped to develop this feeling?

The detailed coding scheme proposed in the Microanalytic Study could provide the principal tool with which to investigate the moment-to-moment interaction between mothers and their babies during early solid feeding. The give-and-take of the behaviours of the two partners have been identified and described. There seems to be great scope for detailed analysis of these behaviours for future research. It has been established that the temporal structure of the interaction does not seem to change within individual feeding sessions. Hence, there must be other cues that mothers use as signals that, for example, their baby has had enough food. Behavioural cues have been suggested as a strong possibility and it is felt that this issue should be further investigated. For example, does the distribution of the baby's attention change within a feeding session? How do mothers interpret this cue? How do mothers respond to their baby's signals? What strategies, verbal and non-verbal, do they use to respond to their baby? Having identified the behaviours involved in early solid feeding, could one draw a profile of the distribution of the ones that seem to make interactions 'easier' for some dyads than for others? Can one identify specific characteristics of the interactions that are 'difficult'? How can these dyads be helped? The answers to these questions have important practical implications for the dyads for whom feeding times are problematic.

The study reported in the present thesis has produced a great amount of data on a variety of aspects of early solid

feeding. The practical limitations of research prevents the analysis and discussion of many more important aspects. Nevertheless, it is felt that the work done underlines the psychological significance of the study of early solid feeding. It provides a detailed description of how mothers and their babies cope with the new experiences it involves. In addition it offers many insights concerning both further questions to be addressed and the necessary methods to approach their investigation.

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# Appendix A


A.1 Copy of One-Week (Pilot) Diary A1

A.2 Copy of Final Form of Diary A5

A.3 Leaflet About Child Development Studies at Durham Psychology Department A10

A.4 Food Item Data for Individual Dyads A11

A.5 Tables A.1 - A.5 A33

# A.1

We are carrying out a study to try and understand some of the experiences of babies (and their mothers) when solids are first introduced at meal times. Do babies have likes and dislikes? If they do, where do such preferences come from and how strong are they? How easily do children adapt to this new way of feeding and why do some take to it more smoothly than others?

Naturally we can't ask the babies themselves to answer these questions directly, but there is quite a lot we think they can tell us indirectly. In which case the obvious person to turn to for help is going to be mother (who could know a baby better?).

There is no doubting how full a mother's day can be, especially when very young children are involved. But although what we are seeking help with does involve keeping a daily record, we think that the time involved in jotting down whats needed is just a few seconds work at each feed. What it amounts to, then, is recording a feed,what baby was offered and making a mark to show how keenly (or reluctantly) it was taken. In addition, it would be interesting to have some judgement of how smoothly, overall, the meal seemed to go and, indeed, any comments that might occur to you to note. Exactly what to write down is illustrated on the example diary attached.

We hope that this would not be too much of a chore, certainly if the occasional meal was forgotten it would not matter too much and if it did become a nuisance or inconvenient we would still be grateful for however much you had managed to record. We think that you might actually find it useful for your own interest, and perhaps even something to look back at some time in the future. In any case, we look forward to any help you can give with this project.

Thank you.

SURNAME:

Address:

Name of child: Date of birth:

Any brothers or sisters? How old are they?

Any special problems at birth?

- Baby has been:
  a) breastfed
  b) bottlefed
  c) both

- If both, was baby
  a) breast and bottle fed during the same time period?
  b) breastfed until ..... and then bottlefed?
  c) both breast and bottlefed until ..... and then bottlefed?

- When you started the baby on solids, how much were you influenced by the following factors? (indicate -, 0, +, for not at all, mildly, or very much, respectively)

| | - | 0 | + |
|---|---|---|---|
| a) advice in books | ___ | ___ | ___ |
| b) advice of relatives | ___ | ___ | ___ |
| c) advice of Child Health Doctor | ___ | ___ | ___ |
| d) advice of health visitor | ___ | ___ | ___ |
| e) previous experience with other children | ___ | ___ | ___ |
| f) baby's behaviour | ___ | ___ | ___ |

If f), please specify.

When filling in the diary form, please indicate:

a) The specific kinds of food that the baby had for each meal, including, in brackets, whether baby seemed to like it very much (+), slightly (0), or not all (-).

b) Whether baby enjoyed the whole feed very much (+), slightly (0),or, not all (-)

c) Any of your personal comments and feelings concerning how the feed went, baby's reactions, etc.

Example

| Day | Meals | Baby enjoyed meal | Comments |
|---|---|---|---|
| Feb 27, 1980 | 1. Beef dinner (0)<br>apple pudding (+) | + | |
| | 2 | | |
| | 3 | | |
| | 4 | | |

| Day | Meal | | baby enjoyed meal | Comments |
|---|---|---|---|---|
| | 1 | | | |
| | 2 | | | |
| | 3 | | | |
| | 4 | | | |
| | 1 | | | |
| | 2 | | | |
| | 3 | | | |
| | 4 | | | |
| | 1 | | | |
| | 2 | | | |
| | 3 | | | |
| | 4 | | | |
| | 1 | | | |
| | 2 | | | |
| | 3 | | | |
| | 4 | | | |
| | 1 | | | |
| | 2 | | | |
| | 3 | | | |
| | 4 | | | |
| | 1 | | | |
| | 2 | | | |
| | 3 | | | |
| | 4 | | | |
| | 1 | | | |
| | 2 | | | |
| | 3 | | | |
| | 4 | | | |

A.2

# BABY'S FIRST SOLID MEALS

We are carrying out a study to try and understand some of the experiences of babies (and their mothers) when solids are first introduced at meal times. Do babies have likes and dislikes? If they do, where do such preferences come from and how strong are they? How easily do children adapt to this new way of feeding and why do some take to it more smoothly than others?

Naturally we can't ask the babies themselves to answer these questions directly, but there is quite a lot we think they can tell us indirectly. In which case the obvious person to turn to for help is going to be mother (who could know a baby better?).

There is no doubting how full a mother's day can be, especially when very young children are involved. But although what we are seeking help with does involve keeping a daily record, we think that the time involved in jotting down whats needed is just a few seconds work at each feed. What it amounts to, then, is recording a feed, what baby was offered and making a mark to show how keenly (or reluctantly) it was taken. In addition, it would be interesting to have some judgement of how smoothly, overall, the meal seemed to go and, indeed, any comments that might occur to you to note. Exactly what to write down is illustrated on the example diary attached.

We hope that this would not be too much of a chore, certainly if the occasional meal was forgotten it would not matter too much and if it did become a nuisance or inconvenient we would still be grateful for however much you had managed to record. We think that you might actually find it useful for your own interest, and perhaps even something to look back at some time in the future. In any case, we look forward to any help you can give with this project.

If you feel you have any questions to ask us, please do not hesitate to give us a ring anytime between 9 am. and 5 pm. from Monday to Friday. (64971/ C.K. Crook ext. 627/ N.K. Papaioannou ext. 630)

Thank you.

SURNAME:

Address:

Name of child: Date of birth:

Any brothers or sisters? How old are they?

Any special problems at birth?

- Baby has been:
  a) breastfed
  b) bottlefed
  c) both

- If both, was baby
  a) breast and bottle fed during the same time period?
  b) breastfed until ..... and then bottlefed?
  c) both breast and bottlefed until ..... and then bottlefed?

- When you started the baby on solids, how much were you influenced by the following factors? (indicate -, 0, +, for not at all, mildly, or very much, respectively)

| | - | 0 | + |
|---|---|---|---|
| a) advice in books | ___ | ___ | ___ |
| b) advice of relatives | ___ | ___ | ___ |
| c) advice of Child Health Doctor | ___ | ___ | ___ |
| d) advice of health visitor | ___ | ___ | ___ |
| e) previous experience with other children | ___ | ___ | ___ |
| f) baby's behaviour | ___ | ___ | ___ |

If f), please specify.

When filling in the diary form, please indicate:

"MENU" a) The various kinds of food the baby had at each meal, including in brackets: 1) The type of food,

| | |
|---|---|
| Packet baby food | P |
| Jar baby food | J |
| Homemade food | H |

and 2) whether the baby seemed to like it

| | |
|---|---|
| very much | ++ |
| quite a lot | + |
| was indifferent | 0 |
| not very much | - |
| not at all | -- |

"Baby enjoyed meal" b) Whether baby enjoyed the whole feeding

| | |
|---|---|
| very much | ++ |
| quite a lot | + |
| was indifferent | 0 |
| not very much | - |
| not at all | -- |

"Feeding time" c) Just roughly, how long did feeding take not counting chance breaks (eg. telephone calls, visitors, etc.)

"Comments" d) Any of your own comments and feelings concerning how the feed went, baby's reactions, etc.

Example:

| DAY | DATE | MEALS | MENU | BABY ENJOYED MEAL? | FEEDING TIME | COMMENTS |
|---|---|---|---|---|---|---|
| Monday | 14-4 | 1 | milk | | | Today was the 2nd morning I tried giving |
| | | 2 | cereal (P, --), scrambled egg (H, +) | + | 20' | cereal. Baby completely refused. |
| | | 3 | beef and vegetable dinner (P, 0) | 0 | 10' | Although baby does not savouries, I think he |
| | | 4 | fruit desert (J, ++) | ++ | 5' | is more interested in sweets. |
| | | 5 | milk. | | | |
| Tuesday | 15-4 | 1 | milk | | | Since he does not like cereal, I feel I |
| | | 2 | cereal (P, --), grilled bacon breakfast (P, +) | + | 20' | am running out of breakfast ideas (he |
| | | 3 | soup (H, +), banana desert (P, ++) | + | 15' | cannot have an egg everyday at this age) |
| | | 4 | Lamb and vegetable dinner (P, 0), mango desert (P, +) | + | 15' | He has been waking up at night hungry, |
| | | 5 | | | | so I have increased his solids. |
| Wednesday | 16-4 | 1 | milk | | | |
| | | 2 | boiled egg (+) | + | 5' | |
| | | 3 | roast beef and turnip (H, 0), sponge pudding (P, +) | + | 15' | |
| | | 4 | chicken soup (tin, --), fruit pudding (P, 0) | - | 25' | Baby sick 5' after meal. I think tin |
| | | 5 | milk | | | soup did not agree with him. |

| DAY | DATE | MEALS | MENU | BABY ENJOYED MEAL? | FEEDING TIME | COMMENTS |
|---|---|---|---|---|---|---|
| Monday | | 1 | | | | |
| | | 2 | | | | |
| | | 3 | | | | |
| | | 4 | | | | |
| | | 5 | | | | |
| Tuesday | | 1 | | | | |
| | | 2 | | | | |
| | | 3 | | | | |
| | | 4 | | | | |
| | | 5 | | | | |
| Wenesday | | 1 | | | | |
| | | 2 | | | | |
| | | 3 | | | | |
| | | 4 | | | | |
| | | 5 | | | | |
| Thursday | | 1 | | | | |
| | | 2 | | | | |
| | | 3 | | | | |
| | | 4 | | | | |
| | | 5 | | | | |
| Friday | | 1 | | | | |
| | | 2 | | | | |
| | | 3 | | | | |
| | | 4 | | | | |
| | | 5 | | | | |
| Saturday | | 1 | | | | |
| | | 2 | | | | |
| | | 3 | | | | |
| | | 4 | | | | |
| | | 5 | | | | |
| Sunday | | 1 | | | | |
| | | 2 | | | | |
| | | 3 | | | | |
| | | 4 | | | | |
| | | 5 | | | | |

Any additional comments:-

A.3

# UNDERSTANDING INFANTS

Child Development Study
University of Durham

A.3

Life Sciences Building, Durham University Tel: 64971 Ext. 627

Would you and your baby like to help in this project? We are trying to discover some of the ways babies experience the world around them — and how they come to make sense of that world. Hopefully, our findings will add to the rapidly growing understanding of how babies develop, and thus help us in the future to provide most effectively for their needs.

What is involved? Much of our work involves simple observation; recording a baby's behaviour in everyday situations — playing, feeding and so on. There are no "tests". We are not comparing children, but building up a careful picture of what the typical child will do at various stages. As children are usually most comfortable in a familiar environment, we would normally hope to pay you a brief visit at home (an hour or so) with a small portable TV recorder. However, for some purposes it is more convenient if you can come to us, and in that case we will arrange and pay for transport by taxi. Perhaps you would find it a pleasant break in the day! Normally just one session will be adequate but sometimes two or three spread over a month or so will be more valuable — although any such decision on more than one visit would finally be yours of course.

We do hope that if you have a baby (or are expecting one) you will be able to help. If so, please fill in the form opposite and drop it in the post, no stamp is needed. There is no obligation involved; we will contact you if we are requiring babies at the time and of course you may change your mind later if there is any inconvenience.

We hope you will help us. Thank you.

Yours sincerely,

Dr. Charles Crook

A.3

Surname .....

Address .....

.....

.....

Telephone .....

Baby's date of birth (or expected date) .....

Baby's name ..... Sex .....

Any Brothers or Sisters? .....

Any special problems at birth, e.g. premature, need for intensive care?

.....

.....

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paid by
licensee

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Licence No. DU16

University of Durham,
Child Development Study,
Psychology Department,
South Road,
Durham DH1 3BT.

2

A.3

A.4

```
FD  Daily ratings (multiple ratings in one day are underlined)

 9  ..............34.5.5.55555.5.5555555555555
11  .....................................4
14  .............. .555 5.....5.

19  ........................................3
20  ..............3.......................3
•21 ....1......4.............3.4.........4
•23 ................................3.2
•24 ........................2
•29 .........1
•31 ............................2

•42 ....1......4...3.......2..3.....3.2..435.3
•44 .........1.................2
45  ....................................3
55  ................3.........3

59  ........................................5
63  ......................4.....5 4.5..5.45

•70 142545.4554..555.33....55.555.5...5....5......5
71  .........4
73  ................................4
75  .....5......5..5..5......5.5.5...5.....5
78  .......5.4.................5...5....5
•79 1455..5....5.........5..5.................5
81  ................................4....5
82  ...................................5....5
87  .....................................4
89  ........5..........55....5........5
90  ........................5...5
91  ....5.5.5.5.535.55.55.5...5......5......5
92  ............................5
99  .......4..5..3
```

FIGURE ' : Food (FD) rating history for SUBJECT 1. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 9  ..........4..4............3...34..343.......4.....4444444..4444444..44444..444.4.4..4
•11 12.....5....5.4..2..5.55554 _ .  .433.3.4444.2.4444... .............44.4.....4.4..4.4.444
•14 ..44...555.3.5.4...5.5 ....4....444.44.4.44...4244....4.34.44...444444454.44444444

•19 ..............................33...2......2.....4.3....4...4............44......4
•20 .....1...5..4...54..5..4.4.........2.3....44.....2.........4.....33.4........4.3...4
•21 ..........4..2....1...........2.....................................3...........4.......3
•22 ......................5......4......2.........4
 23 ................4........3......4.....4.....4.....4.....4........4......4.4...4......4
 24 ..........................4.....................4.4.......4..........3....3.....4
•25 ......................1.....2.....................4....4..................4...4
•26 ..............4.......5......3..42............4.....4.................4......4

 41 ..........................................5..............4.....4.4.....4..........4
•42 .....1...5..4.4454..5554344.4..44.2234...44.44.4244.4....444.3..3344.3.444344.3.434
•43 ...........3.......3.........3.........................2
 46 ............................3.........................4..4.......4
 47 ..................................................4
•55 ..........4..2....1...........2

•59 ............4...1
•62 ...........3.......3.......3.3.....................4...2
•63 ....................................4....2...........4.....4.44.4.4444....44.4.44..4.44
•64 ......................1.....23...........2
 65 ........................................5

 70 ..........................................4.....4......4....4....44...4
 71 ..................................................4..4
 73 ..................................4.............4....4.....44..4.....4...44
 75 ..................5...5...4..3.....4.4.....3.....44..44....4.4..4...4.4..4..4.44
 76 ..........................................4.........................4
 77 ..................4...5.......44...3.....4...........4....4..4
•78 ....2.............4...5....4.....4.4.4.....4.....4...........4..4.4....4..4.....4
 79 ..........4..4.................4.............4.4.44..4.......4..4..5....4...4
 80 ..................................................4..44.4..4.........4.....4.4...4
•81 ...3.................5.....4.........4.....424.......4.44.4.4...4..4..........4
•82 ........5........55.....3..44..........42....4...4.4.4.....................4...44
•85 ..............5.........5.......2.....4.........4.........4.4.....4.....3
 87 ..................................4.....4
 88 ........5........5...........4
 89 ..............5..5..5....4....4....4...4..4....4.........4.....4.................
 90 ...3.................5.....4.........4.....  ..................4...........4
•91 ..............5.......2.....3.........................4.............4......4.4
 92 ..................................................4
 93 ........................3...3...4.3....4
 96 ..................................................................................
•98 ...................2....4.....................................4.........4
```

FIGURE : Food (FD) rating history for SUBJECT 2. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
 FD  Daily ratings (multiple ratings in one day are underlined)

• 9  ......22..44... .44..44.4.44.44.4...44.4.4.. 44.4.4.4 .. . ..44.44.44.4. 4
 11  ......... ......4
 14      ....4.....44.....4.. ........4.4..........4.4....4.....4

 19  ..........................................3.......3
 20  ................. .....34.3.3...4.....4..4.....4..3.4.....3.....4...3
•21  ....................2.................4..2.....4.....4....4........4
 22  ..........................................4.......3.............4.....4
•23  ....................2.....................3...........4..........4
•26  ....................2.......2....1.3.........4......4
 29  ........................4.................................4
 31  .............3......4......3...4.3........3........4.....................4

•41  .............2.....4.....................1.....................4.........4
•42  ................. .2.2234.3.3.2.4..1434.44.233.44..3.4.44..344...44..34
 43  ..........................................3
 44  .............3. ..4.4....4.3...4.3........3......4.4....4....4.4...4..4.4
 45  ..................................................................4
•46  .............2.............................1
•49  ........................4.....4....3....2.............4...3....4...4....4

 58  ........................4.. ..................4
 59  ..........................................3.........................3....3
 60  ................. ..4..3
 61  ..................................................3.......
 63  ........................3............3.............................
•64  ..............................2..4..4...34.4 ...34...4...4...4.....4....4
 65  ..................................................................4.....4..4

 68  ..............4....4.....................4
•75  ..................2..4.......4..5.........5.....4....4..4.4....5...5....4
 78  ............................5.......5...........4
 79  ....................4......5.........................5.............
 81  ..........................................4.......4.............4.4.....4..4
 82  ............................4....4...4...4.............4
 89  ............................5.......4....4...4..........4..............4...4
 90  ..................................................................4.......4
 91  ........................4......4..4....4......4..4......5......4
 97  ..................................................4
 98  ........................4.....................44.........4...4.....4....4
```

FIGURE : Food (FD) rating history for SUBJECT 3. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
 FD  Daily ratings (multiple ratings in one day are underlined)

  3  ............. ................. .  ...

• 9  .1.................................4.3....2
 14  .........44..344444.455.444..5.5.5.    ..

 19  ............................4335.3
•20  3.................3...1..5....5.54.54...55.44
•21  ........................4....4........3..3.1
 23  ..........................................4..4
 24  ..........................................4
 31  ..............3..3.....................55

•41  ....1.............3......33.........
•42  3.................3...1.45....3555.54.45355534441
•43  ..3............3...3..4.......1
 44  ..............3..3
•46  ....1.............3......33.....21.
 55  ............................4

•59  ....................................1....34
•62  ..3............3...3..4.......1.215.5
•63  ...........1
 64  ............................43.3.3

 70  ................................4..........55
 71  ..........................................4
•75  ...1.................................1
•78  ..........5..............4...........2
•79  ............2.............35......34.......4
 81  ................................4
 82  ................................3.........55
•85  ..................................1
 89  ............................4..55.....443
 91  ....................44...5.......45. ....4
•93  ..................................4......2
 98  ..........................................55
 99  .........4
```

FIGURE : Food (FD) rating history for SUBJECT 4. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 9  ..................................5....555...55..55...5.55.5..5.5.5.5.5..55..5
11  ..........................................................55............5
•14 .................4.............5...2.....2..... ..... ......5 ...5

19  ..........4.5.4.5.4..5..5.5...55.............5......5...5..5...5.5...55...55
•20 545...55.. 5.242..55.55..5.5..55.55.5.55.5555......5...1555.5..1545..5..55.55..5
21  ...555.....4...5..5........3.................5...5.5555.....5......5..5..5
•22 ..........................................2
23  ........44............5.5..5..3..5.4......5.5
24  ..................................................................5.........5........5
26  ..........4.5.4.5.4..5.........................5......5...5........5........5
27  ..............................................................................5
28  ..............................................................................5
29  ..........................................................................4
•30 ........................52...1

•42 5455555544 54242.555555.5555.535535555455255 5.55..5.555..1555.555.15454.5555555555.5
43  4554455.4..5........5.555...4....555.5.5.....5..5.5.....5.555.....5
•44 ........................52
•46 ..........................................24.41.................5
53  ..............................................................55.55...5
54  ..............................................................

•59 ..............................4............5...5.................1............2
•60 .......5.5....5..5.....5...5.......5................5...5..5..1...........5
61  ..............................................................
•62 4554455.4..5........5.555...4....555.5.5...245415.5.....5.555.....55555.55...5
•63 ..............................55......55..55....55.......1..5.5.........5
64  ........................5.5....55................5..........5...5

73  ..........................................55........55.......................5
75  ..................................55.....................5.4.....5.55...5..55..5
•78 ..............2..............................2.................................5
•79 ......................22.....55.....................55..55.....15.....5.55
80  ..............................................................................5
•82 ............................44........5.5.5....55.5......55..1...5.......5
86  ..............................................................................5
88  ..................................................................55......5.......5
93  ............................44........5.5.5.......5
```

FIGURE : Food (FD) rating history for SUBJECT 5. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 3  ..................................................................... ..   ....

 9  ..............................5............5.....5.5555.55.55.55555..5.5555555..555.55
11  ..................4.55..5..5.....5.....5.....5..5.5...5..5...5..555..55...5...5..5
13  ..............................................................................
14  .  ......... ............5...5....5.5..5.55...5.55.5.5.55.555.55.5555..5 5..55.55.55

19  ..................................................4..4..4................55...5
20  ..... . . .4.4..5.5.................44.......4....4.5..5..55..5
•21 ............................1..44...4
22  ..................................................................55.5
24  ........................35
26  ..................................................................5...5.... .......5
31  ......................5.........................5....5..............5
32  ............................5.........................5....5.5.............5.....5

•41 .. ................1.5.....................4... ...5
•42 ...         .4 4435.5.553551.5445.54444.....444.5.4.5555.555..5..5.555..55 5.5.5..5
•46 .. ..............1.5.....................4... .5.5.............5...............5
49  ..................................................4.........4
55  ...........

58  ..................................................................5....5....5
59  ..................................................................4..4.....5......5
60  ..................................................................4
62  ..................................................5..............5..............5
63  ......... .........54.5....5..5.55.............54..... ....5..5.5.5.5.5.5.5..5..5
64  ..................................................4..4..4................55...5
65  ..............................................................................

68  .... . . .........5.....5.....5......5............5...5......5....5..... ......5
70  ............5.....................55.5...........5..........5..5.............5
72  ..............................5
75  ..........................................55............5
76  ....................5
78  ..................................................... ....5
79  ..........................5...........55.....55.5..............5.5....5..5
80  ..............................................................55
81  ............5.....................5.....................5..5
82  ..........................................4...........5....5...........5....55
83  .... ..................................................5..5
85  ......... .....3.....................5.5.........55.....55.5.5.....5..5
89  . . ..... ...5.55.....5.5...5.5.5..5.5.5....5..5.....5....5.5 .....5.  .. ...
90  ..............................................................5
91  .... . .. ..............5........5...5.....55.....5..55.5..5.....5.....5.5.5.5
94  ..............................................................................5
95  ..............................................................................
96  ..........................................5.....................5
97  ..................................................
98  ..................................................................5
```

FIGURE : Food (FD) rating history for SUBJECT 6. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

FD Daily ratings (multiple ratings in one day are underlined)

```
 3  ........................................

• 9  .    .44 44 22.....4.......4.44 4 544444_44544.................4444.............4.....................2....4.4
•10  ..........................................544442 444.44_444444444.4444444444434_433_44 44444444444444444444444444444444444444444444
•11  . .... ........2.4..........4.4444.....................................4.....5
 14  ..............4....4443444444.3..... .. ..........................3.............
•15  ..................................................................1

 21  ....................................................................................4
 22  ..............................................................4.44
 24  ..................44
 28  ..................................4...4
 29  ...............................4.......
 31  ....................3....5.5545.4. 44 _.......44... 4 4444.4..44.4 44..4.....................4
 33  ................4..........5.............5.....................................4.........4
 37  ................4..................... 544  ..................4....44.444.4 444.....444.4 .444444

 41  ..................................................444.....................................4.........4
 42  ................43..3.........4.. ... 544  44... 4 444.44444444 444444444 44444444444.4 .444444
 43  ....................................................................................4
 44  .. ..............44......5.5545.4..44 _.........444......4
 49  ....................................4

 59  .......4
 60
 62  .. ..................................................................................44444

 67  .......4.....................................................5
 71  ..........................................4.......4 . . _44.....4.............44.....4
 72  ....................5
 74  ..............................................4 . . 4.........44.............................4..4
•75  ............22....3...........1.........................4.......... ......4.....4.4.............
 78  ..................................................4
 85  ................4.........4
 87  ..................................................... 4
 88  ....................................................................54
 89  ....................................................................................4
 91  ..............................4.4.............4
 92  ....................................................................................44
 93        44 ..................................... ....4.44
 95  ..............................4
 97  ..............................4.....4.......4
```

FIGURE : Food (FD) rating history for SUBJECT 7. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

FD Daily ratings (multiple ratings in one day are underlined)

```
 9  .......444444  4444444    444  4 4 _        .......              . . .
10  ..........................................44     ............. . .
11  ......
13  ..................... .     .......      ........................... __     -
14     . _ ............. .... ..................................... _     .   - -

19  ....................................................................................
20  ..............44      .....4.............. .... _. .......... .. .... ........... .............
21  ..................................... _ ..... _.... ..... .. ..  ........ ..  . .......
23  ..................................... _  ..... _..... ..... ......  . ... .....  ......
24  ..................................................................... ... . ..  ........
26  ..............................  ......... _..... . ..... ..... ....... .. . .....
29  ..................................................... ..................................
30  ..................................................... _.................. ......................
31  ......  ................................. _

41  .....4..................................... _... _...  . ...........
42  ..............44      444444 ...4_ _.. _  _  . ... _.. ... . ...  ..     .     - - -    . .  .   ..
43  ............................4  ..  . .4.... _ .. ........
44  ......  ..................................  _.............. ..............  ............. ....
45  ....................................................
46  .....4.....................................................
56  ....................................................................................
57  ..................................................... _

59  ..................................................                  . .....        ....
60  ..........................................
61  ..................................................... ..............................
62  ..................................................................................... .... ..
63  ..................................................... . .  ........ _   . _     . .. .. ....
64  ..................................................................... ..   .........

68  ..  ................. ...4.4444 .. .4
70  ..................................................... ........ .. ................   .. ...
71  ..................................................  ..  ... ...  . ..................... .. . . ...
75  .... ................  4.4........ ..... .. .... .... ..... .. _..     .... ........  _.
76  ....................................  . _ _..... _.  _... . _ _. _.....  .. .....  _. .... _.. _.. . _. _
78  ..................................... .  _..... _. _......... _... ...  ..  .. .. .. . .. _. ....
81  ..................................... . ......... _... ........... _......... .  ..... . _..... _.
82  ..........,.....................................................
83  ..  ................. ...4.4444 .. .4
85  ..................... ..................................... .. . ....................  . ......... .
94  ..................................................................... _.     ..
95  ....................................................................................
```

FIGURE : Food (FD) rating history for SUBJECT 8. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

FD Daily ratings (multiple ratings in one day are underlined)

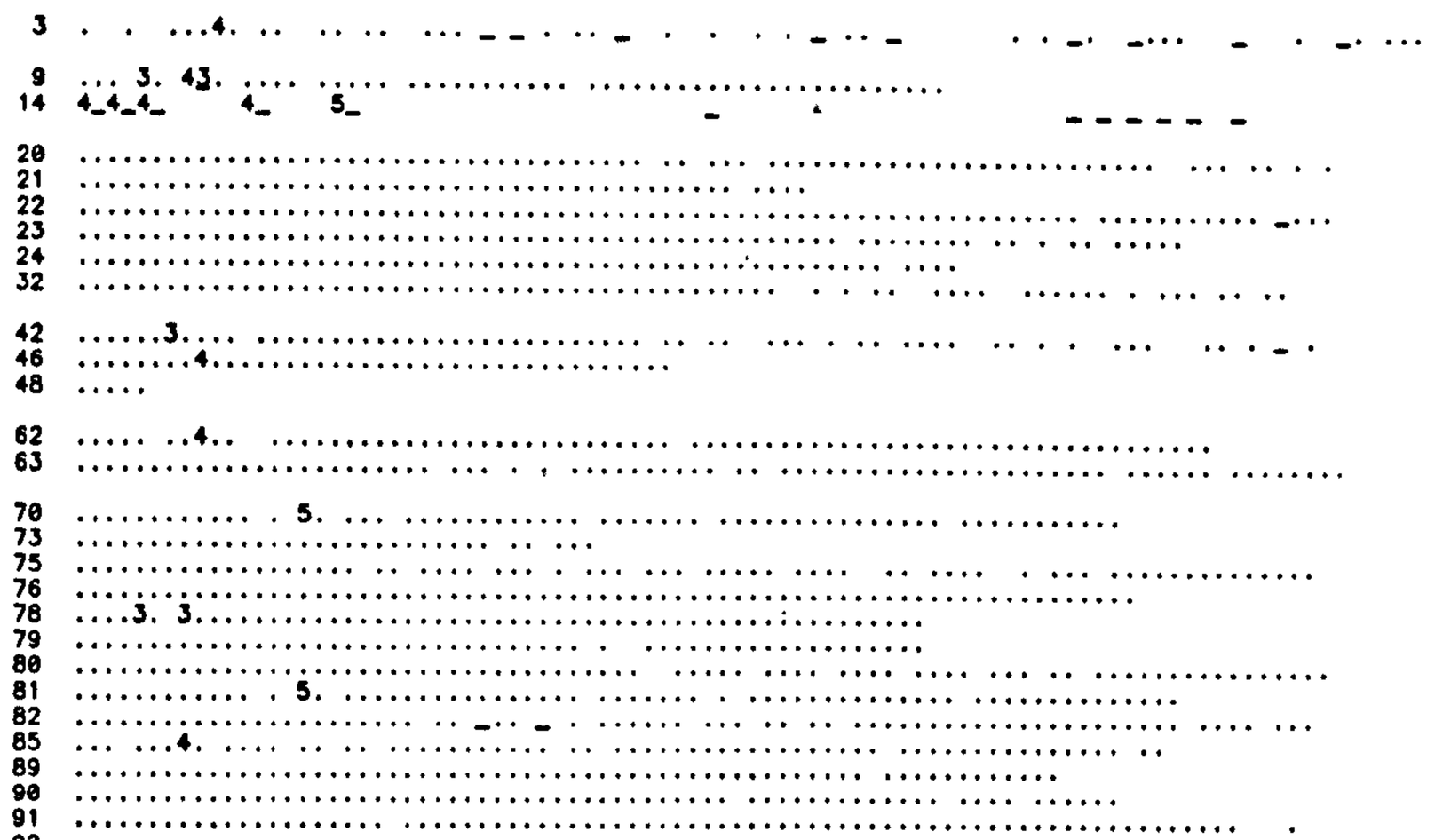
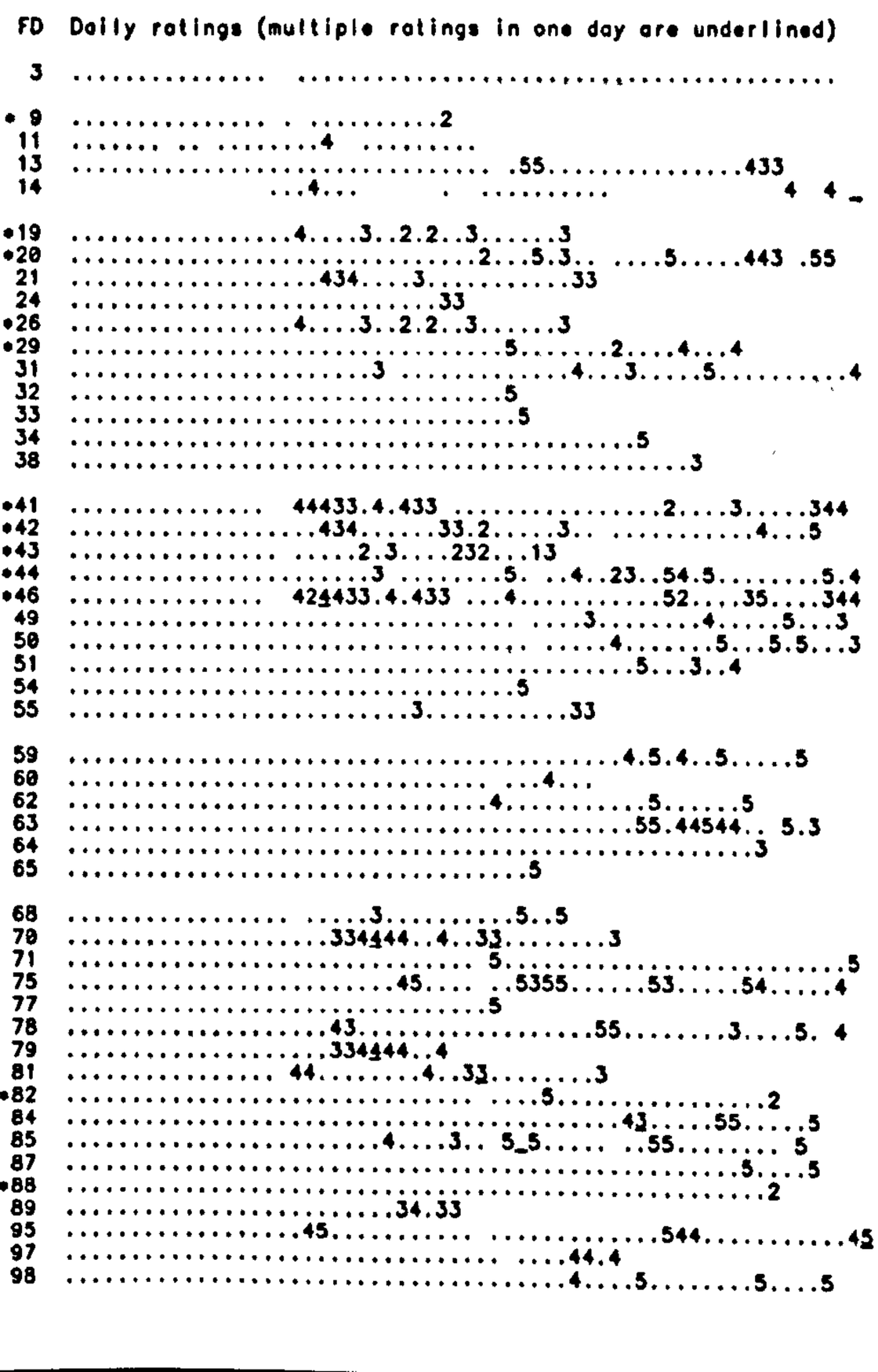


FIGURE : Food (FD) rating history for SUBJECT 9. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

FD Daily ratings (multiple ratings in one day are underlined)



```
FD  Daily ratings (multiple ratings in one day are underlined)

 9  3....5555555.....3.............5        5 5 5
14  ...........5 5555 5 555555555
19  ..............................
•20 .......2.....4..2...........
•21 ...........33.....2.....3....3  ....
23  ................44...4.....................44
24  ....................3......44
25  ....................3......3
26  ............44.....44..... .....  .....4
27  ..............4..........4...........  ....44
28  ..................................................4
29  ........................44.....4
30  .......................4.....................
31  .........44

41  ..................3....3....3
•42 ....3..2.443344444423444444..3.  4.       44444.4
•44 ................................................2
47  ..................3....3....3
55  ..................................3

•58 .2...........1.....3.............
•59 ..............1
•62 ................................................2
63  ..................5 5......3.. .. 3..  ...
64  ....................3......3

68  ..55.5
71  ....................5.....................54
73  ....................5
75  ........5....4.....5.4..... .. . . ....5.4
78  ........................5.... .. . .. . .54 ..55
79  ..............5.......5....5
80  ....................5
81  ..................5 ..........................5
82  ............5.4...5...  ..............
85  ..............................5........ ......4
89  ..............5.............5.  ..... . ....55
90  ................................................5
91  ....................................3..... ....5
93  ..............5.....................
95  ..........................4
97  ..........................4
98  ..................3......3......
```

FIGURE : Food (FD) rating history for SUBJECT 11. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 9  .......44.5 ....5.5.....5.555.55.55555.55.5...5..55..5...5..5..5.. ..4.. ...5...5...5...5
10  ..
11  ..................................................................... ...55...4...5...5
14  535555555..5.......5...5.5.5...5..5.....4.....5.....5...5...5. 5..5..5..5...5...5...5...5

19  ..............................................44..44.....5.5.4..5..5..5..4...5...5...5...5...5
•20 .........355.....2.3..444 ..44..5.....4.........4555.5...5..5...4..5.....5.55...5........5.5
•21 ....13.........................4...........44.........5_..5...........5......55....5...5..5
22  .......444.....................................................5.5.4...5..... .....5...5...5
23  ........................55.55.5.5...........55.5.........5..4.....5...5.....5... ....5
24  ..................................................... .......4.......4.....5....5.5
25  ..........................................................................5
26  ..................................4.3..4....5
31  ............................. ........................44

41  .........355.....................................................5...55.5...4..........55...5.......5
•42 ....13.444.......2.3..4445_5.4554.555.4.3.44.44.555.455555_. 5....5445.455554.5555 .555.55_55555.55
44  ..................................... ..........................44..44
45  ..........................................................44
46  ....................................5.4.....4

•59 ..................................................2
62  ....................................5.4.....4
64  ..........................................44..44..55.5.5.4..5..5..5..45..5...5...5...5...5

70  ................................5...........5. ....55.5.............5.........5.......5
71  ..........................................55.....5
73  ..........................................5
75  ..................................................55.....5..5.....................5..5.5
78  ..................................................55......5.....5..5....5.....5.....5...5
79  ................................5.....5.....5. ..........................5.........5.5
81  ..........,.....................................55.............5..5..5....5..5..5.....5
82  ..........................................5...5..4... ..................................5
85  ....................5..5.55..5.5..5..5.....................................................5..5
88  ..........................................5...5
89  ......555.....5.....5.....................................55.....5. .....55554....5.5..5
90  ..................................55.........5...5..5..5.....5..5..55
91  ..............5.........55.5...55.5.....................................5... .5....5..5
92  ...555.....................................................5..55.....5.........5..5
98  ..........................................................5..5
```

FIGURE : Food (FD) rating history for SUBJECT 12. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 3
 6  .

• 9  .................5.......555...5.5.....................2..255....553
10  ....................555
11  ................4.........4
•14  ................4.....5.5.555.5522555255555.35553.555555555.54...555...4

19  ......33......3.....55...........553...........555.....33.........5.5...5.355
•20  5551555...55555..33.555.........1..555......553...........55..55....55..5.555..555
•21  ....233.............3.5...555......554.......5...........5555..55.555....5544
22  ...........53.....................................5.............45....5.5
23  ....................3.5.............................5......55........55
24  ..................555...555.............555...55.55...55....55.....55..345
25  ...........553.....555.....................55....5...........5..5....55....4
28  .......33......3.....................................33.................55
30  ..................................................4

41  ..................................................................55..5.......5
•42  555152335555555533333.555555555331.555551555555553554553555555.555555555555555555555555545555555555555555345555544

59  ..................................................4
63  ....555.........55.....................553.........5.........55......555.55.553
64  ..................55.....................555.....................4

•70  .........43.....................................5.........2
75  ..........................................553.........................555.5
78  ..............3
•79  ..................5.......555...5.5.....................52..2.....2553..55
81  ....555.........55.....................................5.........55.55.55....5.553
87  ..................................................................3
89  ..................................................5 ...........55.........35
90  ....................555.....................................55
91  .........43
92  ..................................................................55....55
93  ..................................................55555.54.555.....4..3
98  ..................................................................55
```

FIGURE : Food (FD) rating history for SUBJECT 13. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 9  ..........................................4.....4 .....4.......4.
•14  555534255 5555555 555555555555555555555 555    5_ 5   4144552454455 _545555555555

20  ...... .......... ....... ........434.34....44.4..4......5
21  ... ...... .... ....5...5........4...4........4.....4...5
•23  ..........................................1....... ....1
28  ..................................................4

41  .......4......5......5.....54..............5.................5
•42  ... .. ... .... . ....... ........434.341...4444 .4.41..55
46  .......4......5......5.....54..............5......3.4..5...55
55  ....................5...5........4...4

59  ..................................................44.4
62  ..................................................3.4..5....5
63  ......... ......... .. .......

70  4. ....4........5.............5
73  ......... ......... ..
75  ..............................
79  ..........................44....4...44.........5...5
81  4. ....4........5.............5.......44.........5.4...4....5
82  ..................................................4
83  .....3.......5....5.........4
85  ..........................................4.....4 .....4.......4.
89  ..........................................4.............5
90  ..........................................44.........5.4...4....5
92  ..................................................44....5..4.5
```

FIGURE : Food (FD) rating history for SUBJECT 14. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 9  .........4.....4...555.5...55..55.5..4........544.......4.......4..4.......44.44.54544.. 4.4
10  ................................55.....................44.....44..........4
•11 ...2...2...1.3....443...4.4.44.....4....4..44....4..3....4...4.4.........44..4.4.......4.444
•14 35..5....2..3.443.4..5...4...5......4....3...4..4.4.3...4.4. .4.4...4.4.4.4..4..42.4..44.24444

19  ......................5.5.............44....34.....................44.....4..............4
•20 ..............5445...55..3.......444.4444.......4..4.......44.4..44.4..4..4..4..42.4.4....42
21  ...................34.....................................44..............4..........4
22  ..........................................................4
•23 ...................3.........3.............44.....3.................4..4....4..........2.....2
24  ........................44....55.............4.................44..........4..........4
25  ........................4.....................................4..3.....4
26  ..........................................34.....................4.............4

41  ..4.......................4....4....544..44...4.............4..4.......3..........34
•42 ............3544533455544543.4355..444..4414.....4.4.34......44444444444.44.4444444.42.4..24.44422
43  ..........................................4
•44 ..........................................................2.....2..........2
46  ..4.......................4....4....5.........4.............................3
47  ..........................................................3.........3

59  ....................................44.....................................3
62  ..........................................................3
63  ................34..............55.....................44..4.......44...5...44...4
64  ..........................................................3
•65 ..........................................................2

68  ........................5......44........5.....................................4.4
70  ..........................................................4..4........3.............3
73  ..........................................................4...4
74  ................................44
•75 ............1.3......3.......4...55......55.4.....4..............44....444.............44
•76 ..............................1
77  ..........................................................4.....4......44
78  ........................5.................5.....................4.44.........4.....4..4
79  ......................5.............5.......55...444.3.......443......4.4.4..4.4.3...4444...4.43
80  ..........................................55.....................................44
81  ..............34..........................................4..4.......44......44
82  ...................55.....55..55.....................................................35........4
83  ..........................................4.....................................4.4
85  ..........4.5....5....5...4..........5......4..................4.....4..........5
89  ........5.......55.........4.................3
90  ..............................55.....................44.....44.......4..4..............4
91  ..........44.....................................5.....................4..4
•92 ....................................5.5.....................................................2
93  ..........4.....4.......5.............4
98  .....44
```

FIGURE : Food (FD) rating history for SUBJECT 15. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 3  . ................ .. .....    .      .    _

 9          .     .
10  ..............  .                .   .    .

19  ..........................................
20  ...........................
21  ..... .... .... ..............
23  ................
25  ............................ ........
26  ................................
30  ........................................
31  ....... . ..............................

41   .. .. . .. .. . ... .....  . .... ... .....
42  .. .  . .. .. . ..  . . ........  .. ....
43  ..................... ..... .... ...
44  ......... ............ ..
46   .. .. . .. .. . ... ..... ....... ... .....

58  ........... ......... ......... ...
59  ......................... ..... .........
62  ............................ .. ..... ..
63  ......... ....... ...... .... ..... ......
64  ........................................

68  . ......... .. ..................
70  ..................................... ..
72  ........................................
73  ........... ............
75  ..................... .. .... ...
76  ................................ ...
78  .
79  .....  ... .. .. ......... .... .....
81  ..................... .... . .... .....
82  ......... .. .. .
85  ................................
89  ................. .  . .... ........
91  ................. ................. ...
93  .......... ..  ..............
98  ........................................
```

FIGURE : Food (FD) rating history for SUBJECT 16. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 3  ....
 6    ......................
 7  ..................... .... ...  .. ........................... ..........................
 8  ........................ ................................................ ............. ..........

• 9  .4.54.55.555555555255.55.55.55.5..5.5..5.5.......55..5.5...  5.....5.5.5..55..5..5....5..5.5.5555
10  ..............................................555555..5..5...5....5.55.5. .55..55.55.5 55.55...5....5
14                    .  .   ......... .   .   .:                .........    .  .   ...... .

19  ..............55.555.........5.5....5.5...55..5...5...55.5...5...5..5....5...............5..5..5
20  .4.....5.....5...555....5555..55.55555 55555..5..555...555..55.55.....555.5555.5.55.5...55..5.555.55.555555.5
•21 4...4...5.....5.5..52..5..1.55.5.......5.5.......55..5...5...5.5..5....5..........5.........5..5
22  ............55
23  ..5..4....5....5.............................5..55...5.......5..5..5....5....5..5.5....5...........5
24  ...5.....5....5..5..55.........5...5..5...5...........5.....5......5....5....5
25  ................5..5...5
26  ................5.........5.5......5...5...5...5...5..5...5...5..5....5.............5..5..5
28  .....5..5............5..5.....5
29  ..................................................................................5
30  ..........................................................5
31  ......4.....................................................5.....................................................5

42  445544.5555555555.55555555555555555555_5555555.5555.55555..55555.55555555.5555555.555555555555.55.5555.555555.555555555555
43  ..........................................5..5...5....5...5...5......5..............5.....5...5
44  ......4.........................5.................5.....................................5.............5
46  ..........................................5..5...5....5....5........5...5.55.....55.5...........5
53  ..................................................................................5...5...5
•55 ................5..2.....1.....................5...5.......5....5

58  ..4..........3.............5....5....5
•59 .....5..5............5..5.....5......2.....................................................5
62  ..........................................55.55..55....55..5..55......55...5.55.....5555..5..55..5..5
64  ............55.555.5...5.........5......5...........5

68  ..............................3.......5
70  44.5.4.5..555555.55...5..555...5.5.5..55..5.5.....5..5.5...5 5.5..5.5.55.55.5...555.5555..5.5555.55
71  ....5.5.55...555.5.5.......5..5..5.55.......5......5..5..5.5..5.5.5.....................5..5....5
73  ..................................................................................................5
75  ..........55.........................5....5...5..5..5..5...5
78  ..........................................5.....5..5.......5..5..5.5....5.... 5...5........55.5
79  ......5..5...5..5.5.....55..5..5.5.5...5.55.........5....5...5.......5.55.5.5..5..5..55..5.5....5
81  ................55...5...5.......5...5..........5..5.5.....5......5.............5..5
•82 .4...4....5...5..........5....5.5.......  .5...5....5...1......5..5....5.5........5.5..5...5.555.5
85  ....5...5....5.55...5.......5.....5..5..5.....5.55.....5.5.55.5555...5...5..55....5.5.....5..5
88  ..................................................................................5.....5.....5..5
89  4..5...5.....5.5..5.55.5.5..........5...5.5..55...5.....5. .....5...5.........5.55..5..55.5..55
91  ................5.......5....5.55...5.......5..5....5..............5 5...5.............5
•93 ..................................  .5...5....5...1......5..5.....5........5....5.....5
97  ..........................5.....................................................5.............5
99  ..................................... _..................... _............. _

FIGURE    : Food (FD) rating history for SUBJECT 17.  Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating
```

```
FD  Daily ratings (multiple ratings in one day are underlined)

 5  ...................

• 9  .44444.444.444442.....5.............55.................5.....................5.5
14  44..4.4..4.................55.555.5555.....555555555.5555555..5555....5....55.55.55

•19 ..................................................2
20  ................5.44.5...5.55.55.555.....5....5.5.....5.....55....5.5...5..55.5
21  ..........................................5........5.....5...5....5.5..5.....5
22  ..................................................................5
23  ..........................................5...........5
24  ..................................................5.........5...........5
26  ..........................................................................5
29  ..........................................................................5
31  ................5.......5.......5

41  ..............................5..........5......5
42  ...........44444.444454.555555.5.555..55.555.55.....555...55555..555555555555555.5
43  ...4.....................................5......5..............5

58  ..............................................5.........................5.... .5
60  ....................4
•62 ...4.....................................5......5..2............5.5..............5
63  ................................55........5....5..5...55....5. ................5
64  ..................................................................5..............5

68  ................44 4...4445545.555.........................5.5..5...5........5
69  ..................................................................5
70  ..................................................................5
71  ..........................................5......5...........5.5
73  ..............................55............5......5...........5.5
75  ..................................................................55
77  ..................................................................5.5
78  ................44 4...4445545.555..........5.......5....5.....5.................55
79  ....................................55..5......5.......5.5.........5....55555
81  ..........................................................5
82  ..........................................5...5.5..5...5
83  ..........................................5
89  ..........................................55..555...55..5.............5.55555
90  ..................................................5...................5
95  ..................................................................5
96  ..................................,...55..555...55..5.............5.55555

FIGURE    : Food (FD) rating history for SUBJECT 18.  Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating
```

```
 FD  Daily ratings (multiple ratings in one day are underlined)

• 3  ..........................................  22.....................

  9  ..............................................................44

•19  .........................................1
•20  .........2.....................................................44.......  4444...44
•21  ....................................3.....22.............4.422
 22  ..........................................  ..44..55....5..3 ......4
 23  ..................................... 4......44..44.....4.............. 4

 41  ..................................... 4.................44........  ..44
•42  ..  ...1..2.........................3.....22.  44444455..4445223 ..44..4 _444

 63  ..............................................................44
•64  .........................................1

 68  ..................4
•70  ..........4 . ..1.........2.............. 4...........44..... ....144.4.5
 75  ....................................44.................4........4........44
 78  ................................44.......43.....44.4....4..44..4.45
 79  ..................................... 4....4.........4...44.....4
•81  41..54.552........4 .3.33 2.  .....................54..44. 4......44214
 82  ..............................................................44
 89  ................................44......... ....3...4...4..44.5
 90  ..................................... .........5
 91  ..............................................44.....
 92  ..............................................................4
```

FIGURE : Food (FD) rating history for SUBJECT 19. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
 FD  Daily ratings (multiple ratings in one day are underlined)

  7  ..........................................................

  9  44  4 5......55. ..5..5444444.4333.4.4.443.444.44.443. .444444 44 4 44444.444444444444444444.4 _44
 10  .......45̲ 4̲4....4.4..44
 14  ............5

•19  ..................2.........4......4.4...4...4..4..4
•20  33..2.22...4.4.4..4...44.....4.3..4.4.4.3.4.44..4... .44.....4....4...........4
 21  ....................................4........4.....4...4.. ...4..4........4......
 22  ..............................................................................4
•23  ..12.4..444.4.4..4.4.4...4.4.4.3.......... ....4....4....4.44....4..4...4...4....44
 26  ..............4........4.....3..4...4........4
 28  ..............................................4.4. ..4......4...44.......4

•42  331224224444444444.444.444.44333.4444443 4.444444.4 4444444 4..44444...4...44.4.44. .4
 46  ..................4...4...4.....................4..............44...4..44.....4
 51  ..............................................4.4..........4...44.......4

 58  ..............................................................4........4...4..44
 59  ..............................................4.4..4....4.4...4..4...4..4
 62  ..............................................................44...4..44.....4
•64  ..................2.4...4...44.....4.4...4...4..4..4.4

 70  55..5........4..4..4.....................................................4
•71  ........................5.....................................4... 2.....4...........4
 78  .........4.. 4......4.4..4......3....4..4....4....4.....4..4.....4....4...4....4..4.4
•79  55..5.52...4.....................................................4.......4....4...4
 80  ......4
 82  ....................................4.4..3.....44... .4
•83  ..........................................................2
 84  ........................4...4.....................................4.4...4...........4..4
 85  ........4.. ..4..4...4....4..4.3...4...4..4.............4... ......4...........4
 89  .....5
 90  ..............................................4.5.................4......4
 91  ..4 ......4....4..4........4.....3.........................4.......44...4....4.4.4
 93  ...........4
 95  ........................5.................44.5.....5...........4......4
 97  ..........................................5.........4...4.4....4.....4... .4
 98  ............................4..............4......4
```

FIGURE : Food (FD) rating history for SUBJECT 20. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
 FD  Daily ratings (multiple ratings in one day are underlined)

• 9  .........3.55455..5555555555555.....55555455555.55555 55525555.45.55555555555
•11  .........1
•14  434545545225555.5555555555.555555555554555555545555455455 44 ...5....5..5

•19  ................44.............1
•20  ....................1
•21  .......5524..34..5.44.4....5.44...4.....4.5.55.....555...55.5.5...4..24..4
 23  ...........44.................................54.......545
•25  ..............24
•31  ..........................................................2

 41  ................................3..4..5...5....45
•42  .......5524443424 5.41545555554445.45.54.455...54..55555545555555555455245545 5
•44  ..........................................................2
 46  ................................3..4..5...5....45
 55  ........................................55

 68  ..........................................................555.....5555
 70  ..................55.............4..45....55.55.5.55...55.5555.5...555..55.5
 75  ..................................................................55
•78  ..:.............2
 79  ..........5.......555555555455554.55..55.5...5.55.....55...55....55....55.5555..5.5
 80  ....................................4..45....55....5.55......5555
 82  ...........555553..5.....................................................55..5
 91  ....55....55...5..55555.555..5..4..55....5...5....5...555..5.55...555.55.5....55

FIGURE   : Food (FD) rating history for SUBJECT 21.  Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating
```

```
 FD  Daily ratings (multiple ratings in one day are underlined)

• 9  3.4.3.5.34. 3.4.44.2.3.2..4..4.4.55.3...355....3.3..4.4...5554.....5.4...44...54.454.454.444...5
 11  .5.5.5.5..5..5.4..4.4.4.55....5.5..5...5...5..5.5..5.5.5.5.....5...5.....5....5.........5
 13  ..........................................................................................3

•19  ........................45........45..55.23.........45....545.55.4..33..5554.....45..34...444445
 20  ................33.3.33..4.....4..... 3 3........45........4..33.3...4...5.4...4..54.3...4
•21  ....................................55........4.................2............5..4...5
•22  ..............................................445...44.......4.......5...5...5...22......4
•23  ............................55.5......5........342.........44.....4..4..2..5......5.........4
•24  ................................42
 25  ..........................................33.........4.........3.45.....55.45.....4
 26  ....................................55.....................4.....4......55......4...3....4..5
•31  ..........................................................................5.....1

•41  ........................45....55555..5.55 3.33.42.5.55........35.4..5..45..55.4.........4...4
•42  ..........555555533535335.45555544245555....5343..44554544544.52444333433435525455555544455555422544.5.444
 43  ..................................................4...........4.....................4
•44  ..........................................................................5.....1
 46  ..............................555....5.55.........5.............4..5........4.... 4.....444
 47  ..........................................33

 58  ..................................................
 59  ..................................................................... 5
 62  ..................................................................... 4
 63  .44............5.5.....................................45.....................5..............55
•64  ........................45.............23..33
 65  ........................45.......55.................55........35.......45..55

 68  ............................55......5.....4.......444.........4...5.....5.5.. 5 ..45...4...4
 70  ....45.........................5.............5...5.....55..5.44.55.5.55..55...55.4....55..4
 71  ...4
 72  ..................................5.....................
•73  ..........................................45......43....54..34..53...55.54555.5...2..4..43455
 74  ..................................................44.....................
 75  .44...5
•76  ..........................................................................44..............2
 77  ..................................4.5.555...5........4
•78  ................2.....................55......5.44.45..5544..5.5..5...5...........4.4.5..44
 79  .......5.......................55..55..55.............55.................5....4...4....5..5
 80  ..................................................................44....5...5555..55.........444
 81  ....45.....5.5.....5...4.......555...5.....5.55.555..4....55..5.5.5.4.............4.........4
 82  ..............5.5...........45...55.5.5..45...445.........4.......53.44.....45...44...44...5
•85  4.......4......5........4.......5...........4.....................4......5...........2
 86  ..........................................................................54.........5
 87  ..................................................45.........55.........55...55
 88  ..................................55.5.5..45.....5...........4.................5...4...4
 89  ..................45.............5...5...5......4.........5.....5.....5..........4...5
 90  ..........................................................................................4
 91  .........55...5.......5....5...5.5.....5..5.5...5..5.....55..5..3.55...55......55......55
 93  ..................................................45.........55.........55...55
 95  ...4..4
 96  ..........................................................................................5

FIGURE   : Food (FD) rating history for SUBJECT 22.  Starred items include negative ratings.
```

```
FD  Daily ratings (multiple ratings in one day are underlined)

 9  55555555555.....................................................................4.....5.555555
10  ..............................................................5555534444444444444445.55545
11  35.33 3 444554.55555555555555555555555555555555555555555
14  ..........................................................5

20  ............55.5..5.............4.5...5..555...55...555...55 ..4..445..4..5.....5...5.4..3
•21 ..................5532....3.4....5555.................3.....................3.....3
23  ..........................................55.....................4..4.........4...5..4...5
26  ............3.55.55....55.5.5.............555....3...3.5... ..4....55..5...5..5...4...55
31  ..................................................................5.....5

•42 ............553555555..3255.535..4.5555.55555555555..35553.555  4444445554.55435.555434554553
43  ..............................................55
44  ..................................................................5.....5
46  ........................5....5.5
55  ....................55........4.....5.................3

62  ........................5....5.5.............55

70  ....................5.5.....5...555.55..55555..5..55.5.........5.....5..5..5545...5.555..53
71  ..................................55.....................5.55.............5..5
73  ..................................55..5.555........5.........5.....5.....5..5....5.....3
75  ............3.55..55.......5.....5.............55........5.5.............5....5..5...5
78  ................555.55...........5....5.....................................5.........5
79  .....5555.............5...5.55.........55.................5....5.55.55.....5......55.5..5
81  ....................5.5. ....5...555......5....5..55.....................5....54....5..5..5
82  ..................................................................5.......5
83  ..............................................5.5..5.......
85  ............55.5...5....5....5....5.5.....55..55...5..5..3.....4..5.5...5..5..5.55....5..55
89  ...........55555..5..55..55.5.5555.5...5..5.5..5....5...4.................5..5.....5...5
90  ........................ ..................................5
91  ..................................................................5.........5..5
97  ..................................................................5
98  ............:.....................................................................5
```

FIGURE  : Food (FD) rating history for SUBJECT 23. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 3      . .  ..  ..................... ............. ..................... ...  .....4..4
 4  ..................................................4
 8  ..................................................................... ... .....54. 44

• 9 ..........................................................5555555 52555   5 44444444344
13  ..........................................4.....3.....4......4......5.4...3.55.  4_44.5435544445555

21  ..............  ......  ......4.5..5.......5.....5.....55.5...4..5......55.. .......5
30  ..................................................................... .............3
•31 ........................ 5...3.............................5..2...4......... .....4..4..34
40  ........................

41  ..........................................................3
42  ..............................................................4
44  ....................................4.........4.......4...5..3...4.4..5.  ..444.34..34
46  ..................... ......5..5..........5.......5.................5
49  ............. ..  ..  .....5....5 .5.55....5.5.5..........5...5....4..3..... 4..5...4..5
50  ..................................................4.....................5....  .....3......3
51  ..................................5.....5......5
56  ............. ..  ..  .....5.......5.5.....5...5..........5...5

•59 ..................................................................... .........2
60  ..........................................3..3...35...4..4.....  ...5.4..4
61  ....................................4.4.....3.............................. ....4...4
62  ..................................................................5
•63 3333332          _  3 4 554545535551414 45535555555544 45 454.. 54 55.541.5554_5_   5445.4.444445
64  ..................................................... .....4.......4.4.435..4455

67  ..................................................................................4
70  ....................................5.5.............4...5.......444...4..........3
71  ......................  .4..5..5...........55...5.4....5..5534.5.5....54.... ..4.54.4....5
78  ................................5...4......4.........5...........5..4... .. .55.......54
80  ........ ....
81  ..............................................45......4
•82 3333332.....................................................................4
84  ......................... .......4................4...........5...................5.44.5
86  ....... .
97  ..................... .....4.........................5.....4.................. ............4
99  ....................................4.............4
```

FIGURE  : Food (FD) rating history for SUBJECT 24. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
 FD  Daily ratings (multiple ratings in one day are underlined)

• 9  5.5.............................555..4.5.5..4..3...4..4.....4.......4....45...4...4...1....4..5
•14  .5.....................................5.5..5..5...4....5....5...5..5...5....4.2..5..5.....4..5

•19  ..........................................  ......................4....4..4...4.................2
•20  ............................11.....44...5...4...4...5......5..4.....4.............4
•21  ................................2..........2.......5.5..4...5....4.....2...5.4.....2
 22  ..................................................................................4
 23  ..................................................................5...............4
•24  ..................................................................4.4.......2...5
•25  ..................................................................2......2
 26  ..............................................................4....4..4...4
 28  ..................................................................4.....4
 31  ..................................................................4

 41  ......................5.5..5....5..5.....................................4
•42  ....424.2.2.........1...5...114.24.44.4.5..244..4..5554.4..5524..4.34....2....54.4..42......2.445
 43  ............5.55..5.....................................4.......4.........4..............4
 45  ..................................................................................4
•46  ..................:.....5.5..5....5..5.............55....5.......5......24.....4.4.5....4.1...44
 55  ..................................................................5

 58  ..................................................................5....4.....5..........4
 59  ..................................................................4...5....5......5
•60  .........1...........5.............. ..................5.4.....5
•62  ..........................................55....5.......5..4...2...4........4....1
•63  ..................................................................4...5..1
•64  ..........................................  ..........................2......2.......2

•68  ...5455555.5.5.5..52..55..5.4..5.5...5......4.....4....5...4........4........5.54.....4
•70  ..................................................................5....5.....4.4...2.....4
 71  ..................................................................4.........5...... .5
•72  ..................................................................4.........2
 73  ..................................................................4...5........4
•75  ..................................................................1.........2
 78  ..................................................................4.........44
 79  ...545....5.........45.....................................................
•81  ..................................................................5....5.....4.4...2....5
•82  .......55.45..4..24....5.44.4.......4.......3......3...5.............3...2.....5.......4
 83  ............44.54.....4.4..3..4.............3...4.......3.................4
 85  ..................................................................................5
•88  ......................5.44.4.......4.......3......3...5.............3...2
 89  ..................................................................4. .4..5.....5 .5
•90  ..................................................................1.......5.2
 91  ..............................................55....5...5
 93  ..................................................................5.......4
```

FIGURE : Food (FD) rating history for SUBJECT 25. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
 FD  Daily ratings (multiple ratings in one day are underlined)

  4  ..............................4

•14  2345     555555555554545 5454542525 5555. 5

 19  ..............  ..4............
•20  ....54....44.....4..  ..4..4.245.4.2
•21  .......25.....5....  .....4.5.......5
•23  ............5...  .....  ..2.......4
 26  ..............  ..4............
 27  ......4..3..............5
 28  ............4

•42  ....544..3445...  4.   .  452445245.4425
 43  ......................4
•55  .......25.....5

 62  ......................4
 64  ............4

 70  ......................5....5
 73  ..........................
 75  ..................................4
•78  ................2........2
 79  .......5.4........5.4..........
 81  ............4..5.............5..5
•82  ....  ......1....2.55 ..2.5 .5..5  _
 83  ..........................  ...
 84  ......................5
•85  ......2...5..5...5.5
•88  ............1....2......2
 89  ..............5.....................4
•91  ..............5.4...2.5....5..  ...
 95  ........4
 97  ........................5
 98  ......................4
```

FIGURE : Food (FD) rating history for SUBJECT 26. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 9
11  ..........................33    4.3.....3
13  ........................444
14  ........ 5      _ _ _ _ _ _ _ _455    _ _ _ _5_5_555 _ 5455555555555555555 _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _    _ 55555

•19 ..................................................111.........1....1
•20 ..................................................111.........1111..........444..443..2222222.222..222.  _.  _.....322....1333.433
•21 ..................................1...1.3..............111.....................................222.... _ ....44.....111...........4
•22 ..................................1.....................................................................444....22......2...1
•23 ..................................1111......1111.......111.....333.4444.333....222.222...222.......334.....11.....333
•24 ..................................................................................11
•25 ..................................................111..............111
•29 ..................................................................411
•31 ..................................5.33.....................11.....................................................11

•41 ..................................................................44333.444....2222.222222.....  _.......334322....1
•42 ..................................1513..3..1111111...111111.1111..111..111..4444.44333311..222..222222222222. _ _ _44444...2211
•43 ..................................................................................................22
•44 ..................................3..44.................11...411
•46 ..................................1.................111
•55 ..................................1

 59
•62 ..................................1.44.............111...1.....................................................44
•64 ..................................................111111.........11....1.....................................22

 68                                                                                                    .
•70 ..................................1.....................................................5...455
 71 ..................................................55.....................  _.............55.....55
 73 ..................................................55.........5...........  _.............55.....55
 75 ..................................................................44.....55
 76 ..................................................4
 78 ..................................45...55..55.55.......55......444...4445..444....444.... _......445....552.....555
 79 ..................................................55..4444.........44.......455....444.........  4..4  ..........5
 81 ................44 ..............4.444....44....55...44.........44.....4444......444....444.... _... _44.......... _
 82 ..................................................................................554
 88 ..................:.............................. ___ ___.............................. _____.....................
 89 ..................................5..55.....................444.....................  _
•91 ..................................1.....................................................5...55...44
 92 ..................................4.....................4
 98 ..................................................4444.......5.444........55....444... _ ..........555
 99 ........................444
```

FIGURE : Food (FD) rating history for SUBJECT 27. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

  3 ..................  ..............

• 9       .    . 43....3............2........545....555555...55.555
 10 ........................3...34.4.55..5.55555.5..5555555555
•14 ..   ..   44544..2.. 555555555555555555545555555 555555555555555555

•19 ..................................4432........55.....555..555
 20 ....................454555555.............45......55555...5555
 21 .............33....5444.........4.......45555.....5
 23 ................................455555.....................5
•24 ..................................................2
 26 ..................................................55

•42 .............33....5444454555555445545352....45.....255555555.55555555
•43 .......   .2.................................555.5......55
 55 ..................................45555.....5

•62 .......   .2.................................555.5......55
•63 ..................................................................224

 70 ..................................................555...4
 73 ..................................................................5
•75 .4   ......................2.....2.............................4
 78 ..................................4455.455.55....5554.. 5
 79 ..............:.................................555.5454....
 80 ..................................................4
•82 ................................2...44.2
•88 ..................................................................2
•93 ..    .    . 43..2.3.............44.2..........555..5.....4
 94 ..................................................................
 99 ................................ _
```

FIGURE : Food (FD) rating history for SUBJECT 28. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 9  ......................55...55.....................................5.....................
11  ..........................................................................................33
13  ..............................................4
14  ..............................................5.....................5

20  .4  ..5.5.5.5..5..55.5...5.....5..34.5.5..5.5..5.5...45435..45.........5...5.5...3..55
•21 ........................2.....................3.......................2
23  ..................................................................5....5..4
24  ......................5.....................5.....5...........55.....................5
26  ....55...5.5.5...5..5......5..5..3..4.5..55...53...55.....3.4.5.5..5....5......3.3
•30 ..................................................................1
31  ..................................................5.....................3
32  ..............................................55.55.5.5.. 5.............. . 5.55...3.4..55.55
38  ..................................................... .....5
39  ..................................................... .5...................3

•42 .4  555.555555.5.55555..5525..55.3344555.555.553553.55 554543555344555.5..552.5.555545..3.3555.5.5
•43 ............................1.................................2
44  ..........................................................................3
•46 .......1......1.......3.....................................................5
49  ..............................................4
50  ..........................................................4
53  ..................................................................5.5.5.......5......5

58  ............................5..3.......5.......4...4.. ...4...5..... ...5...5 .3...555.4
•62 .......1......1.......3.....1.....................................2.5.5.5.......5.5....5
64  ..................................................................5.5....5

70  4.4 4..5. 5.5..5.55...5..55.....................5.. .5....5... 5.55...5.5....5..3
71  ..............................5.................5.....................5.............55
72  ..........................................................................3
75  ......................5....5.....................................5.................5
76  ..................................................................4
77  ....................................5
79  .....55.5.....5.....55.....................................................5....4
81  4.4 4..5..5.5..5.55...5..55.....................5....5.................5....5
82  ..................................................... 5.5........5.....4
83  ..................................................................................5
84  ..............................5...5.5.5.5...55.5....4.  ...4....5.5...5...54.....45....5
85  ....................................5....5......4.
89  ....,...............................5.........5
90  ..................................................................5.......5
91  ......................55....5.....,.....5......5
93  ..................................5.............................5.....4
95  ..................................................................5.......5
97  ...........5.5.....5.......5..5..55.5.5.5..5555 ..555.5545344.5555.5.55555555.5...44455... 555

FIGURE   : Food (FD) rating history for SUBJECT 29.  Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating
```

```
FD  Daily ratings (multiple ratings in one day are underlined)

 3  ..................................................................... .        .

 9  ....... .   . .. _ _ . . .... . _ . . . .   ... . ....  . .... .    .            _ _
10  ..............
14  5_ _ _ _ _ _ _  _      _   _ _ _ _ _ _ _. _ _ _ _  _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

19  .............. ..................................... ......
20  ...  ...........  ...  .....     .. ....... ....... .....   .......
21  ..................  ..............  .........  . .......
22  ................  .....  ................................. ........................
23  ..........  ........  ..........  .............. ........  ....
24  ............................  ............  .......
26  ..................................................... ......
27  ..................................................................  .....
29  ..................................................................... ........
31  ..................................... ..........................................
32  ..................................................................... .....
36  ..................................................................................

41      ..................................................
42  .....                                .                ..     . . .   ..      ..
44  ..................................... ........................... .......  .......
46  ..................................................................................

59  ............... ..................
62  ..................................................................................
63  ..................................................................................
64  ..............

70  ..................................................................... ............
71  ..................................................................................
75  .....   ........ .... ............ .  ........  ......    .......  ..... .  .. . . .
77  ..................................................................................
78  ................. ............  ............  .......  .   ..... ......... .. .
79  ........................
81  ................. .  ................................  .......   .... _...... .....
84  ..................................... ..................................... ......
85  ............................. ............
89      .......   ........  ....  ..........  ........ ..  ......  ..... _.. ...... ... .
92  ........ . ..............................  ...  ....  ......  .  ....... _.. ... . ....
93  ........................
98  .......... .
```

```
FIGURE   : Food (FD) rating history for SUBJECT 30.  Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating
```

FD Daily ratings (multiple ratings in one day are underlined)

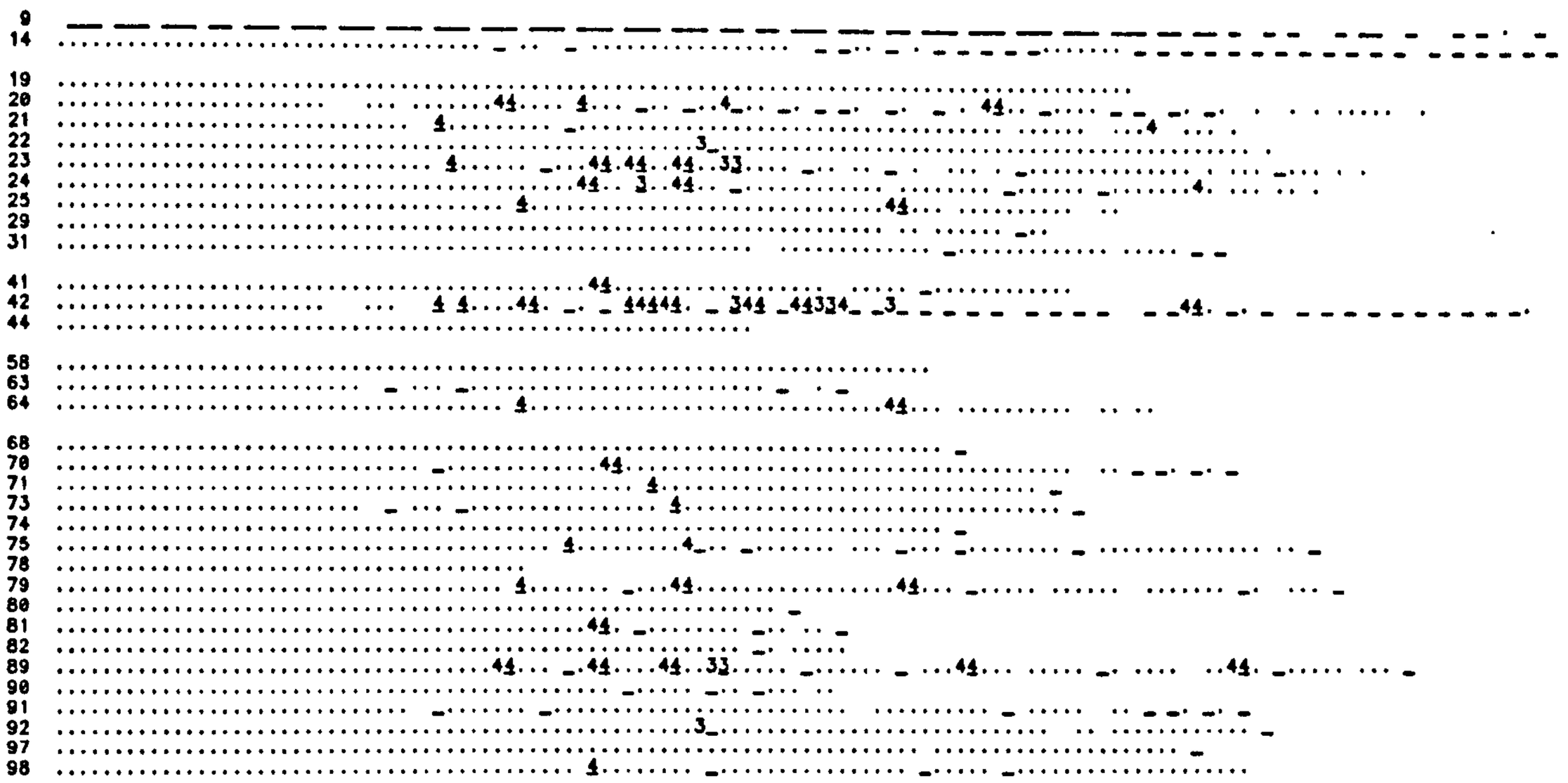


FIGURE : Food (FD) rating history for SUBJECT 31. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

FD Daily ratings (multiple ratings in one day are underlined)

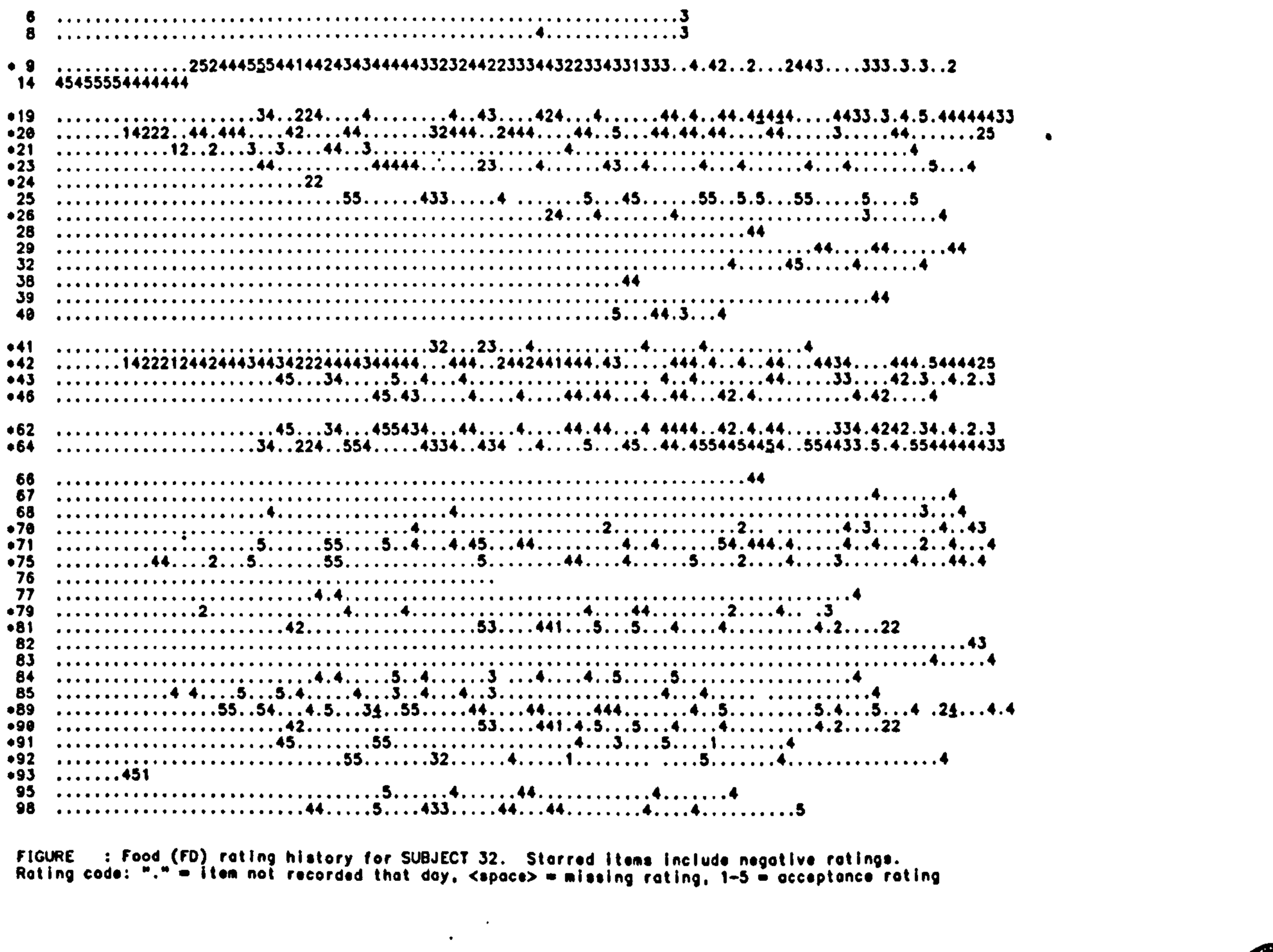


FIGURE : Food (FD) rating history for SUBJECT 32. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 9  ..................... ......44... 5.....    .  4
10  .....................   ......................
11
14  .....................  ......   ..5 5  .... . .. 5    _ ...... .

19  ..............:.....................................................
20  ............................. ......4...  .. _.....4. ... ..  .. .
•21 ..........................5..   ..2.......... . .  .  .. .. .....
22  ............................... ............4.......... ......
23  ..........................4..... ..  ..... ............... ..
25  ........................... ......... ......... .....  . .. .
26  ..................................... ..... ..... ... ..
32  ..................................... ..... ..... ... ..
33  ..................................................

41  ............................ .... ... ..... ................
•42 ..........................54. .  .24 ..   . _. 4 .4_    .     _ ..  _
44  ..............................
46  ....................................3

59  ..................................... .......
62  ....................................3
64  ........................... ......... ......... ......  . .. .

70  ..................................... . ... .... .. ..... ..
71  ............................. ..............5....... ... ......
73  ..................................................
75  ..................................................5... .. .. ........
78  ..........................5. ..................................
79  ..................................................... ..... .. ..
81  ,..........................5.......... ..........4
82  ................................ ............
85  ................................ ...5..
89  ....................................
90  ..........................5.......... ..........4.......
91  ..................................... ..... . ... .... .. ........
92  ..............................
98  ..................................... .. ..... .. .. .......
```

FIGURE : Food (FD) rating history for SUBJECT 33. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 6    .. ..................................................................

 9  ..................................      4      .. ..........     ..
10  ..................................................................................
14   - - - - - - - -          ..        4                                -          -   -

19  ..................................................... ......................
20  ..................................... .. ............
21  ....................................
23  ..................................................................................
26  ..................................................... ......................
31  ..................................................... .. ......... ...... ...

41  ..........................................      .          ... ..  .  .. .. .  ....
42  ..................................... .. ..................  .  ..... .. . ..    ..
43  ..................................................................... ..............
46  ..........................................      .    .     ... ..  .  ..  . .  ....
55  ....................................

62  ..................................................................................

68  ..................................................................
70  ..................................................................... ......  ...
75  ..................................................................... .. ...... ....
78  ..................................................................... ... .... ..... ...
79  ..................................................................... ................ ...
81  ..................................................................... ....... ..........
82  ..................................................................... .. .......  ...........
83  ..................................................................................
89  ..................................................................................... ......
91  ..................................................................................
93  ..................................................................................
98  ..................................................................................
```

FIGURE : Food (FD) rating history for SUBJECT 34. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 3  .

 9  ............................45....5.5
11  4̲5...55..5̲5......5.5.555.5.5
14  ................................5....5..............5

19  ....................................5
20  .....4.................4.4.........5........5.....................5..5..............5
21  ............................5....5.....5...5.......................5
22  ............................5.5.......5
23  ..34..............................55.....................5.............5...........5
24  ..................................................5......5
31  ........4.4........55.5...5....5...5...5..5..5....5.....5...........55......55.....5

41  ..................................5
42  ..34.4.........5.......4...5555.5.5.5.5.5..555...55555..5.........5555..........5.....5.....5
44  ........4.4....5...55.5...5..5.5...5...5..55..5...555....5............555.....55.....5......5
49  ..................................................................................5

64  ....................................5.............................

70  ............................5
71  ....................................5........5.............................5......5
75  ....5................5........5..5......5....5.....................,.5
78  ..................................................,5............5...................5
79  ..................................................5.............................5
81  ..5.............................5.......5.........5.............................5
89  ..............................5....5.....................................................5
90  ..5.............................5.......5.........5.............................5
91  ..............................5.....................................5.5
98  ......................5
```

FIGURE : Food (FD) rating history for SUBJECT 35. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 9  34. .... ..... .   . . . .... . . .  . .. .. . . .   .. . ..  .. . .. .
10  ..................................................... .... .. . ... .. .  .
14  .          . .  . . .  . . ....   . ..  . . .. .   . .. ........ ......

•19 ..................................................11.................
•20 1...  ..... . .... .. ..  ........... . ......... ..  . .... ..... ..  .....
 21 ....... ....... ..... ..... ..................... ....... ...... ........
 23 .. ..... .. ...... ...... ..... ... ....... ............................ ..
 25 ..........................................................................
 29 ..............................................  ..............  .......  .....
 30 ..........................................................................

 41 ...... ......... ..................................... ..
•42 11 .  .  .  .. ..   .     .  . ...  . .. . .   . ._        . .    .   .
 43 ......... ..........  ....... .. ..   ..... .. . ....  ..... . .. . .......
 44 ............ ..................................... .. .......  .......... .
 45 ..........................................
 46 ......  .........  ..........................................

 58 ..................................................................... ... .. ...
 59 ..................................................  ......  . .  . ...  .. . ......  ..
 62 ..................................................................... .......
•64 ............................ ...  ......  ....  . ...11. . ......  . .. ..

 68 ........................
 70 ..........................................................................
 71 ..........................................................................
 75 ....  ...  .....  ....  .....  ........  . ....  .......  ..........  ...  ..  .......
 77 ........................
 78 ..............................................  ....  ........................
 79 ..................  ...........  ........................................
 81 .....  ...  ..............  .  .  ...  .  .  .....  .  ........   .  .  .  .  .  ..  ...
 82 .......  ...  ...  ....  .........  ........  ....  ...  ......  .  ...  ...  ..  ..  .....  .
 83 ..............................................  ..  .  ............
 88 ...  _.............  ___.....................................................  _.....  _.  _..  _.  _
 89 ......  .....   ..  ......  ....  ...  ..........................  ...  .  ..  ....  .
 91 ..........................................  .  ..........  ......  ..  .......  ..  ....
 92 ..................................................................
 94 ..........................................................................
 95 ..................................................................................  .  ..
 97 ..........................................................................
 98 ..................................................................  .....  ...
```

FIGURE : Food (FD) rating history for SUBJECT 36. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 3  ..........  ...  .....  ............................ ............ . ....... ..... . ...   .

 9  ...3344444444454444  444444444 44444444444444444444344444444455555554444444344344444444555555455555555
13  ..........................................55.4.. .5.5.44 55 .4 4.   _ _ _  444 4 _ 4444444441 3444444444_4_4544444444444445444_44
14  ......................4455554 4445544444..4..4.4.4 4..4..4..4.....4.....4.4.5....44.......4

19  ..................................................................................................4
20  ......................5..............5555.....55...5.....................................44.......54
21  ........45.........5.......55.............54....5........4....555...........5.....................55
23  ..............5.5....5..........55..............55..........5.....44............3.44....44
24  ..................................................................45.................................5
26  ........................5.5.....................................................4
29  ..................................................................45.................5
30  ..........45.....5 ...4..4...55.............33......55.54.4.5....54....55....45......34.......45.....55
37  ..............................................4.... 5.......  .....  ......5...................4.44

41  ....44
42  ........4545.555.5 55545545.55555554555555433555555555544455555554444555454545453.4.34444445445545545555
43  ............4.....................................5.......5.....3....5...........44...4
44  ....44
49  ..................................................................................3
54  ................5
56  ............................5

•58 ..................................4.4.....  .5.  ..4.  ..5...4......2.....5...........5...5...3....5
59  ......................4...........3...........3...........5........5.......4....5......4....4...5...5....5
60  ...3........4  ..  ..  ......4...4
62  ............4 .5....4..5.......53.5....  55.43.......55..5.5.5....53....5.44...55.3..4...4.4.........4...5
63  .......4....  ..  .....55..5.55...555..5..55..5455.5.55.5..4..55..5..5.5..5.34.4.4344...5..5.4.45...55..5
64  ................................5.....4.......4.....................................
65  ..........................................5..4..  .5.5.44.5 .44.     ...444 .444.5.4 34..4.4  .4.4444444 4

72  ..................
75  .55...4....5.....  ........4...55.55.5..5.45..4.5..5..55.5..5.5.  .55.5.5.4.5.5..4..35.4.54.4..5.5.5..5.4
•78 5..............4 4..2.3.55....555...4454...  44...........4.45.....5......5.....4.....5..5..  .......5..5
79  ......................5......55..555..5...5.......5.55.......55..5....5..5.............5....4.45...55
82  ..................4.....................................................................  ........5..4...4..4...4
91  ..................................................5.5.....4 4..55......5..4....5.....4...5..5...5.....5
97  ..................................................5.........................4
98  ..........................................................................44
```

FIGURE : Food (FD) rating history for SUBJECT 37. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 3  .......  ....  .  _.  .  . _ ..  ... _   ..   _ .. .....

• 9 ........444532.455333344544544434555452 555544445354 434....5....45.........444 4
 13 ..............................................................5

•20 ....................1
•26 ....................41... ....
 30 ........................................5
 31 ..........................................................4

•41 ..................................................553.444.55....2
•42 ....................41... .... .42.......5.................5.555...4
 43 ........................................5 4
•44 ................1...1..... ...1
 46 ..................................544..5............55
•50 ..........................................................4..........22
 54 ..................................................553.444
 55 ..............................34
•56 ................1

 59 ..................................................................4...4
 60 ..........................4
 61 ....................................54....5
 62 ..................................................5........5
 63 ..............................555555.........55 .5.      55 555.4.4444
 64 ....................................4.....................5
```

```
 71 ..................................................55.....................4
 75 455.545 55.5.555544455555445445555555 ..55355445. 45555 .55       55 555.44441444
 78 ..................5.. 5 ..................55.555..55.......
 82 ..........................................4
 85 ..............................555
 86 ..............................555
 88 ..................................................... _......... ___ _
•89 ..................................................... .2
 93 ..................5..5.....................................5
•96 ..........................................................2
 97 ..............................................................
```

FIGURE : Food (FD) rating history for SUBJECT 38. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 3  ........................................4
 5  ..................................................5.....5...5

• 9 ..................4.5552355555355.44555....5..5...5..5.4..3....5
 10 ................555.5.....................................5....5
•11 ...2..55.555355455..4....5..5.....5...5...5.......5..5
•14 ..............................52..5555.55.553.55.5.45.5 .5.55

•20 ..3......5......5..2.............3...........54...5...5...4
•21 ................5.3.5..5.......2...4................5
 22 ..................................... 3
 23 ......................4.3..5..5.......5....5.......5....4...5
 25 ..........;.....................................55
•26 ..................................................25

•41 ..........5.....................................25
•42 5.3....55...5.53.2.5.54.35.55.5..3.5...55 3.5.545..5.5.5..44..5
 43 ..................................4........5.........5.....55
 44 ............5.................5.........................55
 46 ........................3.............5...4.........5...5
 49 ....................5.................5.........55
 50 ..................................................5
•55 ................5.355..5.......2...4.5.........55

•61 ..................................................2
 62 ........................3..5....4..4...5.5.4.....5..5...5.5
 64 ..................................................55
 67 ..................................................5
 68 ..............................5...5.......55...5
 70 ..........................5
 71 ..................................5
 75 ..................4.....4...5.5.....3...5..5.......5.....5...5
•78 ..............2.................5........5.......5.....55..2
•79 ..............................552.....5..5..53..5...4..5..5
 81 ......................4.5...5....4.5...4.......5
 82 ..........................................5..55.....5.55...5
•83 .......5..5.5...5....5.....5..5..2...5...5....3...5....3....3
 87 ....................4
 88 ..................
 89 .....55...3..45..4....5..5.....5...5...5.......5..5
 91 ............................5.......4.............5........55
 93 ........................55
```

FIGURE : Food (FD) rating history for SUBJECT 39. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
FD  Daily ratings (multiple ratings in one day are underlined)

 3  ..................................................

 9  ....................4.4.....4...4...4...4...4...4...4...4...4..4....4.44.....4.4.4.4.44.4
11  ...555...5.4..4..4..44....4.4..4....4...4...4...4...4...4...4.....4
14  ..................444.4.4.4.4..44.4.4.4.4.4.4.4.4.4.4.4.4.4.4.44.4.44.4...44444.4.4.4.4..4

19  ..................4
20  33...444..55.4.........4....4....4.... ....44....4...4...4.........4..4..4.4......4 ...4....4
21  ..444...55..5.4...4.....4....4...4...4....4....4....4...44.4.44... .4..444......4...4
23  ................4..4.......4....4.....4....4....44..4.4.4...4....4.4.....4...4.4.....4......4
24  ..................................................................................4
26  ..................4
29  ..................................................................................

42  334444445555544.4.44...44..444..444..44 ..4444..4444.44444444 44_4. 4 4.44 4.4_.4_4444.44..4 4.444.444_
43  ....................4..4..... ...4....4....4....44....4.4..44...44..4.....4...4.4.......4.4
44  ..................................................... . .. . .... . ..............
46  ..............4.4...4....4...4.....4....4....4..4.4....4...4.4........4..4.4...4.4
53  ..................................................................................4...4
55  ..................................................4.4.4.........44

62  ..............4.4...44..44...4 ...44...44...44..4444...444..4444..44..4.4..444..4444..4...44.4

68  ..................................................................4.44.....4

70  ..................................................4.....................4    ......... ..4..4..4
71  ..................................................... ..................44.44
75  ..........................4.444.4.4_.44. .... .. .. ... ... . . .. ..... ......... . . .
77  ..................................4..4.....................................4..4
78  .........5...4.....4...4. ..............4...4.4.4.. .4... .........4.4...4..4.444.4..4
79  ..............................................4...4.....................4.............. .........4
81  ..............................................4.......44..4.........4. ..... ......44
82  ..............................4....4.4.44. ..4..4.........4.....4.............4.........4..4
83  ..............................4..4.....................................4..4.......4...4
85  ..................................................................................4.4
88  ..................................4.. ..4..4.........4.....4
89  ......555..5....4..4...4...4..............4.4.............4.................4
91  ..............4..4....4..4.....4....4..444...4.............4.....4..4.  ..4.....4...4
93  ........................4....4.4..4
96  ..................................................................4
98  ..................................................4..4.........4................4
```

FIGURE : Food (FD) rating history for SUBJECT 40. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
 FD  Daily ratings (multiple ratings in one day are underlined)

• 9  452 32.2.5.525.45.4.4.4.4..4.4.4.4...4..4.44..44.....44.44........2.................3
•10  ..................................2..5..4..2.2.2.244..44.44.44..4..44.444 444.422.4..4.4.4.4.4
•11  ....2.2.2...4..5.4.5.5.44.2.2.4.4.4..4..2..2...4...4
•14  ..34555444 55442444454444444 454 444   444 44444444444445.444444545444_444444  44 44 4554444444

•19  ........22.....................................................4.4.4..4.5.....5..4...42.5...2.4.2
•20  .5.4...44....54.....54.4.244..24.44..4....3..424.44124.554.1.554.4....4...3...555.4.5444.555.4.54
•21  ..4...5....4....4.....................44...2....5.......4.. ...5.......4.4....2....44...5.5.44
•22  ..........................................3.................4......2.............4.........5
•23  2.....4.....4...44..44442...254..4.................4.....2.5.4.4.4....5.4..4.....4...54..4.2
•24  ............................2..4....2.........4.....................4....4...5...4.4.............4
 25  ....................................3.......4...4..............4
•26  1...2....2....4.....................4.2.......4.........................4
•29  ................55..2.......5..........4...5.............5..5.....4..4.........4...5...4.....5
•30  ...................1
•40  ............................2..4

 41  ....................................44.................4..........5.............4.......5.4.5.....5
•42  12544224544224454.44425444444224.22544..44542244433 2.4424445.12445544425 5444524444444.4544.45.45554442444.44554554454.42444
•43  ...4.......5.......2.....4.....................................................3
 44  ................55..........5..............5
•46  .5...4.4..5.5.5..5.....5..2...4...4............4
 48  ..................................................................................................4
 49  ..................................................................................5.4
 51  ..........................................3.................5........4.............5.........5
 53  ..................................................5
 59  ....................................4.....................................5.....................5
•62  .5.4.4.4..555.5..5.2...5.42...4...4.......3....4.....................................4
•63  ..................................................44..24...2..2.4
•64  ..4.....22.....................5....3.......4...4........4.4.4....5.....5..4...42.5...2.4.2

 68  ..................................................4.............................4
•70  .3.4....4.....4...4........2...4..4..4.....4.....................................5
•71  ..................2.4..2.........4.....................................................4
•73  ..........................................2.....................2.....................4
 74  ..................................................................................4
•75  5....5...5.5.4......55.....24.......4..............4.............4.4..44..4..5.2
•78  .....................42...22.....................................................4
•79  .3.4......4..4...4.....4......22...4.......4..4.............4.4........5....4.........5.....2
 80  ..................................................4
•81  ........4.. ..4...4........2...4.....4....4.............2....2.........5..4...5.5.4.........14
•82  ..4.4.. .....5.4....4..........4....2.........44.5..44...4.4....2
•85  ..................2.4..2.........44.4....4...4......4..4.......4.....4.....4..4..2.2
 89  .........4..4..5..4.....4....41...4.....................4.............4.......5
•90  ..................................................................5.5.4.........14
•91  ..4...4...4.4.5.4..4...5....2.........  ..4..4...4.5..4.......4.4....4..4.....2.5......4.....14
•92  ..........................................55..........2.........5...4.......5.....4
•93  ....45. .....5.4....4...........4....2............5..4......4
•98  .......... .............22.....................................4....4....4.4......4
```

FIGURE : Food (FD) rating history for SUBJECT 41. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

```
 FD  Daily ratings (multiple ratings in one day are underlined)

  9  ..................................................55.5...5....5....5.5.5......5..4..5.5....5
•10  ..............................25..55..55.45..5.5...4..4.4...55.....45.........4......5......44
 11  ..................................................................5
•14  ..................................... 5..4.  ...5......5. ..5..  .5...2..5. . . ..45... .

•19  ..............................555254......5...42........5....4......5...5.5.5..55....5..5
•20  .24.5.42.2..4.4..4.4...5..544.........44.45..4..4544......55....55....5......4.54..5.4.....5
•21  ...5.5..2.5..5....5..........55..55.....................4.........1.5....5.4.....4.....5.4
 22  ..............................55.....................................4.....4
•23  ...........2...44.......44.........44.....44.........52.....44.....................................5
•24  ......................55.................2.....55....4.....................4.......4...5
 25  ..............................55.........4......4.......4
•26  ..................................52
 29  ..................................................................................5
•31  2.....................................................5.4....45...5.4.5....5...........5.4.5

 41  ..........................................45........44.................................54....4.....5.5
•42  .24555422252454444454.555445445555554444 2..4445545..4525445544.55515545.4544544...455.55544.5
 43  ..................................................................4........5
 49  ..................................................................................4

 63  ..................................................................................4
•64  ..............................5555..54.....45...424.......54....4......5...5.5.5..55....5..5

 67  ..................................................................................5
 70  ..............................4........5......445.....5......5...54......5......5.5.4...555.55
•71  ..................................................4..5....5..55.55...5525.5...5.2.55...5
 72  ..................................................4
•73  ..................................54.....................................2.........24
•75  ..........................................2.2......5..4...... ..5..2...5....... ..5..5......5
•78  ..................................5.................54..24.2..4............5
•79  ..................................2..2.............4.................2...2
 80  ..................................54.....................................................4
•84  ..................................................................................4..2
•85  ..................................................................................2...4
•89  ..................................................44.........2.........2....2.....2
 90  ..................................................................................4
 91  ..............................4........5......445.....5......5...5.......5.....5........5...5
•92  ..................................................................................2......4
 98  ..................................................................4.5....4........5
```

FIGURE : Food (FD) rating history for SUBJECT 42. Starred items include negative ratings.
Rating code: "." = item not recorded that day, <space> = missing rating, 1-5 = acceptance rating

FD Daily ratings (multiple ratings in one day are underlined)

9 .3.3.4..44.4.4.4.4.45.4.45.4..4.4...544..545.4.44.. ..4.4.....455
10 .....3....5...4.4...4.44.....4.....4.....55
11 ..4.4.4...4.4.4.4.4.4.4.4.44.4.4.....4
14 5555555555555555555554554545555555555555555555

# A.5

Table A.1 Overall Distribution of Specific and General Comments Across Dyads.

| DYAD | SPECIFIC | | GENERAL | | TOTAL |
|---|---|---|---|---|---|
| | M | B | M | B | |
| 1 | 11 | 22 | 24 | 18 | 75 |
| 2 | 2 | 12 | 9 | 19 | 42 |
| 3 | 8 | 22 | 4 | 20 | 52 |
| 4 | 3 | 8 | 8 | 17 | 36 |
| 5 | 22 | 34 | 17 | 31 | 104 |
| 6 | 9 | 35 | 13 | 12 | 69 |
| 7 | 14 | 21 | 13 | 28 | 76 |
| 8 | 7 | 19 | 11 | 21 | 58 |
| 9 | 5 | 7 | 5 | 13 | 30 |
| 10 | 8 | 9 | 9 | 4 | 30 |
| 11 | 2 | 8 | 5 | 3 | 18 |
| 12 | 1 | 6 | 8 | 16 | 31 |
| 13 | 14 | 9 | 4 | 11 | 38 |
| 14 | 1 | 15 | 10 | 15 | 41 |
| 15 | 15 | 34 | 12 | 27 | 88 |
| 16 | 3 | 5 | 7 | 12 | 27 |
| 17 | 3 | 3 | 1 | 5 | 12 |
| 18 | 7 | 11 | 2 | 12 | 32 |
| 19 | 17 | 40 | 33 | 73 | 163 |
| 20 | 18 | 23 | 2 | 68 | 111 |
| 21 | 13 | 6 | 10 | 24 | 53 |
| 22 | 17 | 68 | 10 | 58 | 153 |
| 23 | 17 | 65 | 5 | 53 | 140 |
| 24 | 6 | 6 | 19 | 12 | 43 |
| 25 | 13 | 17 | 2 | 13 | 45 |
| 26 | 5 | 8 | 2 | 6 | 21 |
| 27 | 3 | 9 | 4 | 7 | 23 |
| 28 | 8 | 12 | 8 | 23 | 51 |
| 29 | 11 | 5 | 16 | 21 | 53 |
| 30 | 18 | 37 | 20 | 74 | 149 |
| 31 | 10 | 24 | 26 | 36 | 96 |
| 32 | 16 | 14 | 3 | 37 | 70 |
| 33 | 1 | 8 | - | 2 | 11 |
| 34 | 10 | 30 | 25 | 22 | 87 |
| 35 | 2 | 4 | 5 | 6 | 17 |
| 36 | 11 | 87 | 10 | 72 | 180 |
| 37 | 5 | - | 10 | 4 | 19 |
| 38 | 1 | 15 | 21 | 39 | 76 |
| 39 | 27 | 36 | 21 | 52 | 136 |
| 40 | 7 | 10 | 5 | 20 | 42 |
| 41 | 6 | 5 | 12 | 17 | 40 |
| 42 | 14 | 50 | 4 | 19 | 87 |
| 43 | 5 | 19 | 15 | 6 | 45 |
| TOTALS: | 396 | 878 | 450 | 1048 | 2772 |

M : Mother-Centred
B : Baby-Centred

Table A.2 Detailed Distribution of Specific Mother-Centred Comments Across Dyads.

| | MOTHER'S INTERPRETATIONS OF BABY'S APPETITE | | | | | | | | | | INFLUENCE OF FLAVOUR NOVELTY IN EARLY SOLID FEEDING | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BABY-CENTRED | | | | OTHER-CENTRED | | | | | | | | |
| Dyad | B's general health | B's general appetite | B's excitement/ distraction | B's preferences/ dislikes | Characteristics of specific food item | Influences of the weather | Influences of heredity/ social environment | Specific brand of food | Order of food presentation | Feeding technique | Extent of Mother's Expectations | Baby's response to novelty + | Baby's response to novelty - |
| 36 | 1 | - | - | - | 1 | - | - | - | - | - | 6 | 5 | 1 |
| 19 | 4 | - | - | - | 2 | - | - | - | - | - | 11 | 10 | 1 |
| 22 | 2 | - | - | - | 4 | 2 | - | - | - | - | 9 | 9 | - |
| 30 | 1 | 1 | - | 1 | 12 | - | - | - | - | - | 4 | 2 | 2 |
| 23 | 9 | - | - | - | 1 | - | - | - | - | - | 7 | 6 | 1 |
| 39 | 2 | 9 | 1 | 1 | 5 | - | - | - | 1 | - | 8 | 7 | 1 |
| 20 | 7 | - | 1 | - | - | - | - | - | - | - | 10 | 7 | 3 |
| 5 | 1 | 4 | 2 | - | 7 | 2 | - | - | - | - | 6 | 5 | 1 |
| 31 | 8 | - | - | - | - | - | - | - | - | - | 2 | 2 | - |
| 15 | 4 | 1 | - | - | 3 | - | - | - | - | - | 7 | 7 | - |
| 34 | 2 | - | - | - | - | - | - | - | - | - | 8 | 3 | 5 |
| 42 | - | - | - | - | 8 | - | - | - | - | - | 6 | 2 | 4 |
| 7 | 4 | 2 | - | - | 5 | - | - | - | - | - | 3 | 2 | 1 |
| 38 | - | - | - | - | 1 | - | - | - | - | - | - | - | - |
| 1 | 1 | - | - | - | 1 | - | - | - | - | - | 9 | 7 | 2 |
| 32 | 6 | 2 | - | - | 5 | - | - | - | - | - | 3 | 3 | - |
| 6 | 3 | - | - | - | 1 | - | - | - | - | - | 5 | 2 | 3 |
| 8 | 2 | 1 | - | - | 1 | - | - | - | - | - | 3 | 3 | - |
| 21 | 3 | - | - | - | - | - | - | - | - | - | 10 | 6 | 4 |
| 29 | 7 | - | - | - | 1 | - | 1 | - | - | - | 2 | 2 | - |
| 3 | - | - | - | - | 3 | - | - | - | - | - | 5 | 2 | 3 |
| 28 | 1 | - | 1 | - | - | 3 | - | - | - | - | 3 | 2 | 1 |
| 25 | 2 | - | - | - | - | - | - | 1 | - | - | 10 | 8 | 2 |
| 43 | - | 1 | - | - | 1 | - | - | - | - | - | 3 | 1 | 2 |
| 24 | 2 | - | - | - | - | - | - | - | - | - | 4 | 3 | 1 |
| 2 | - | - | - | - | - | - | - | - | - | - | 2 | - | 2 |
| 40 | 2 | 1 | - | - | - | - | 1 | - | - | - | 3 | 3 | - |
| 14 | 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| 41 | - | - | - | - | 3 | 1 | - | - | - | - | 2 | 2 | - |
| 13 | 5 | 1 | - | 1 | 5 | - | - | - | - | 1 | 1 | - | 1 |
| 4 | 1 | - | - | - | - | - | - | - | - | - | 2 | 2 | - |
| 18 | - | - | - | - | - | - | - | - | - | - | 7 | 7 | - |
| 12 | 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| 9 | 5 | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 | 5 | - | - | - | - | - | - | - | - | - | 3 | 2 | 1 |
| 16 | - | - | - | - | 1 | - | - | - | - | - | 2 | 1 | 1 |
| 27 | - | - | - | 1 | - | - | - | - | - | - | 2 | 2 | - |
| 26 | 2 | - | - | - | 1 | 2 | - | - | - | - | - | - | - |
| 37 | 3 | - | - | - | - | - | - | - | - | - | 2 | 2 | - |
| 11 | 1 | - | - | - | - | - | - | - | - | - | 1 | 1 | - |
| 35 | - | - | - | - | - | - | - | - | - | - | 2 | 2 | - |
| 17 | 1 | - | - | - | - | 2 | - | - | - | - | - | - | - |
| 33 | - | - | - | - | - | - | - | - | - | - | 1 | 1 | - |

Table A.3 Detailed Distribution of Specific Baby-Centred Comments Across Dyads.

| Dyad | Preference for: (a) food item (b) brand/type of food | B's physiological reaction to food | Reaction to food/meal/ order of presentation | Changes in preferences/ dislikes | Amount consumed | Wariness/reluctance | Continuity in preferences/dislikes | Dislikes | Influence of time of day on appetite | Lack of flavour preference/dislike | * |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 36 | 35 | 7 | — | 10 | 6 | 3 | 14 | 10 | 1 | 1 | - |
| 19 | 5 | 1 | 7 | 8 | 2 | 8 | 3 | 5 | 1 | - | - |
| 22 | 27 | - | 4 | 4 | 7 | 3 | 15 | 6 | 2 | - | - |
| 30 | 13 | 1 | 5 | 9 | 3 | 3 | 1 | 1 | 1 | - | - |
| 23 | 12 | - | 3 | 8 | 6 | 26 | 3 | 4 | 3 | - | - |
| 39 | 4 | - | 5 | 8 | 5 | 8 | 4 | 2 | - | - | - |
| 20 | 3 | 4 | 3 | 10 | - | - | - | 3 | - | - | - |
| 5 | - | 1 | 16 | 2 | 1 | 14 | - | - | - | - | - |
| 31 | 10 | 4 | 2 | 4 | 1 | 1 | - | - | 2 | - | - |
| 15 | 5 | 3 | 3 | 12 | 4 | - | 3 | 4 | - | - | - |
| 34 | 5 | 2 | - | 8 | 2 | 1 | 1 | 7 | 3 | 1 | - |
| 42 | 5 | 1 | 3 | 7 | 1 | 13 | 7 | 12 | - | 1 | - |
| 7 | - | - | - | 11 | 2 | 8 | - | - | - | - | - |
| 38 | - | - | 1 | 10 | - | 3 | 1 | - | - | - | - |
| 1 | 2 | 1 | 1 | 1 | - | 7 | 9 | - | 1 | - | - |
| 32 | 3 | - | 5 | - | - | 2 | - | 3 | 1 | - | - |
| 6 | 8 | 2 | 5 | - | 4 | 1 | 9 | 4 | 1 | 1 | - |
| 8 | - | 1 | 5 | 6 | - | 1 | 6 | - | - | - | - |
| 21 | 3 | - | 1 | - | 1 | - | - | - | - | - | 1 |
| 29 | 2 | - | - | - | 1 | - | - | 1 | - | - | 1 |
| 3 | 6 | 2 | 3 | 6 | 1 | 1 | 2 | 1 | - | - | - |
| 28 | - | - | - | - | 2 | 6 | 2 | 2 | - | - | - |
| 25 | 2 | 6 | 1 | 1 | 2 | - | - | 5 | - | - | - |
| 43 | 7 | 2 | 2 | 3 | 1 | - | 1 | - | - | 3 | - |
| 24 | 2 | - | - | 1 | - | 2 | - | - | - | - | 1 |
| 2 | 2 | 1 | - | 2 | 3 | - | 1 | 2 | - | 1 | - |
| 40 | 5 | 1 | 1 | 1 | - | - | 2 | - | - | - | - |
| 14 | - | - | - | - | - | 8 | 3 | - | 4 | - | - |
| 41 | - | - | 3 | - | 1 | - | - | - | - | 1 | - |
| 13 | - | - | 5 | 3 | - | - | 1 | - | - | - | - |
| 4 | 1 | - | 1 | 3 | - | 1 | - | - | 1 | 1 | - |
| 18 | 1 | 1 | - | 7 | - | 2 | - | - | - | - | - |
| 12 | 2 | 1 | 2 | - | 1 | - | - | - | - | - | - |
| 9 | - | 1 | - | - | 1 | 5 | - | - | - | - | - |
| 10 | 3 | 1 | - | 1 | - | 2 | - | 2 | - | - | - |
| 16 | 2 | 2 | - | - | - | - | - | - | - | 1 | - |
| 27 | 1 | - | - | 1 | 3 | - | - | 3 | 1 | - | - |
| 26 | 2 | 1 | 1 | 1 | - | - | - | 3 | - | - | - |
| 37 | - | - | - | - | - | - | - | - | - | - | - |
| 11 | 5 | 1 | 1 | - | - | - | - | - | 1 | - | - |
| 35 | - | - | - | - | - | - | - | - | - | - | - |
| 17 | 3 | - | - | - | - | - | - | - | - | - | - |
| 33 | 3 | - | - | 4 | - | - | 1 | - | - | - | - |

* Reaction to specific food item/entire meal and to order of presentation of sweet-savoury and/or solids-milk.

Table A.4 Detailed Distribution of General Mother-Centred Comments Across Dyads.

| Dyad | MOTHER'S POLICY TOWARDS: Amount of food offered | Introducing new flavours | Food offering contexts | Timing of meals | Baby's rejections | Feeding technique | General, casual comments | ACKNOWLEDGMENT OF BABY'S CUES FOR: Being full | Being ready for solids | Being hungry/ thirsty | Being settled | Mother's guesses | CHANGE IN SURROUNDINGS AND EATING | NEED FOR TIME FOR M & B TO GET USED TO EACH OTHER | MOOD AND APPETITE | SLEEPING AND EATING |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 36 | - | - | 1 | - | 4 | - | - | - | - | 5 | - | - | - | - | - | - |
| 19 | - | 1 | 3 | - | 6 | - | - | - | - | 9 | - | - | 1 | - | - | 7 |
| 22 | - | - | - | - | 2 | - | - | - | - | - | - | - | - | - | - | - |
| 30 | - | 2 | - | - | 15 | - | - | - | - | 1 | - | - | - | - | - | - |
| 23 | - | - | - | - | 2 | - | - | - | - | - | - | - | - | - | - | - |
| 39 | - | - | 5 | - | 3 | 1 | - | - | - | 4 | - | - | - | - | 3 | 5 |
| 20 | - | - | 1 | - | 1 | - | - | - | - | - | - | - | - | - | - | - |
| 5 | 5 | - | 2 | - | 1 | 1 | - | - | - | 1 | - | - | 1 | - | - | 1 |
| 31 | 4 | - | 5 | - | 12 | - | - | - | 2 | 2 | - | - | - | - | - | 1 |
| 15 | - | 1 | 1 | - | 3 | - | - | - | - | 2 | - | - | - | - | - | 5 |
| 34 | 1 | 3 | 4 | 3 | 4 | - | - | - | - | 4 | - | - | 1 | - | - | 5 |
| 42 | 1 | - | 1 | - | - | - | 1 | - | - | - | - | - | - | - | - | 1 |
| 7 | 1 | 2 | 2 | - | - | 1 | 1 | - | - | - | - | 4 | 1 | - | - | 1 |
| 38 | - | - | 2 | 1 | 6 | - | - | - | - | 5 | - | - | 3 | - | 2 | 2 |
| 1 | - | 2 | 6 | - | 4 | - | - | - | 1 | 4 | - | - | - | - | - | 7 |
| 32 | - | - | - | - | 2 | - | - | - | 1 | - | - | - | - | - | - | - |
| 6 | 1 | - | 5 | 1 | 4 | - | - | - | - | - | - | - | - | - | - | 2 |
| 8 | 1 | - | 1 | - | 3 | - | - | - | - | 2 | - | - | 1 | - | - | 3 |
| 21 | - | - | - | - | 5 | - | - | - | - | - | - | - | - | - | - | 5 |
| 29 | 1 | 3 | 10 | - | - | - | 1 | - | - | - | - | - | - | - | - | 1 |
| 3 | - | 2 | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 1 |
| 28 | - | - | - | - | 3 | 3 | - | 1 | - | - | - | - | 1 | - | - | - |
| 25 | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | 1 |
| 43 | 3 | - | 6 | - | 3 | - | - | - | 1 | 2 | - | - | - | - | - | - |
| 24 | 1 | 1 | 10 | 1 | 6 | - | - | - | - | - | - | - | - | - | - | - |
| 2 | - | - | 3 | 1 | 2 | - | - | - | - | 1 | - | - | 1 | - | - | 1 |
| 40 | - | - | 2 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - |
| 14 | - | 1 | - | 1 | 1 | 1 | - | - | - | - | - | - | - | - | 5 | 1 |
| 41 | - | 1 | 1 | 2 | 2 | - | - | - | - | - | - | - | - | 4 | 1 | 1 |
| 13 | - | - | - | - | 2 | - | - | - | - | 1 | - | 1 | - | - | - | - |
| 4 | 2 | - | 4 | - | 1 | - | - | - | - | - | - | - | - | - | - | 1 |
| 18 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 |
| 12 | 3 | - | - | - | 3 | - | - | - | - | - | - | - | - | - | - | 2 |
| 9 | - | - | 2 | - | 1 | - | - | - | - | - | - | - | - | - | - | 2 |
| 10 | 1 | - | 3 | - | - | - | - | - | - | - | - | - | - | - | 1 | 4 |
| 16 | 1 | - | 2 | 1 | - | - | - | - | - | 1 | - | - | 1 | - | 1 | - |
| 27 | 1 | 1 | - | - | 1 | - | 1 | - | - | - | - | - | - | - | - | - |
| 26 | 1 | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - |
| 37 | - | 1 | 2 | - | - | 1 | - | - | - | 2 | 1 | - | - | - | - | 3 |
| 11 | - | - | 2 | - | 1 | - | - | - | - | 2 | - | - | - | - | - | - |
| 35 | - | - | - | 1 | 3 | - | - | - | - | - | - | - | - | - | - | 1 |
| 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 |
| 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

* Food offered in terms of: texture, brand, variety, mother's preferences, relative amount, plus order of presentation of sweet/savoury and solid/fluid.

	ASPECTS OF PROGRESS OF WEANING																					
Dyad	Acceptance of tastes	Eating behaviour	Amount of food consumed	Preferences for fluids	Solids and fluids: relative preferences	Solids and fluids: order of presentation	Breast feeding	Type of food	Distinguishing tastes	Physiological effects of weaning	Gradual progress	Mother's feelings and expectations	Overall progress	EATING BEHAVIOUR	EATING ATTITUDE	APPETITE	FLUCTUATIONS IN APPETITE	PACE OF EATING	BABY FOOD (M's opinion)	ADVICE OFFERED ON WEANING & HEALTH	GENERAL HEALTH	OVERALL DEVELOPMENT
36	-	-	-	-	15	-	-	-	-	-	5	-	6	-	-	13	33	-	-	-	-	-
19	4	-	3	6	2	1	4	-	-	-	1	12	16	7	2	9	-	1	1	-	3	1
22	2	-	-	-	1	-	-	-	1	-	-	-	6	-	-	39	6	-	-	-	2	1
30	-	1	3	5	1	7	-	-	-	1	3	1	13	1	-	9	4	1	9	-	15	-
23	4	-	1	-	-	-	-	-	-	-	2	-	2	-	-	32	4	-	-	-	6	2
39	-	1	1	4	2	3	-	-	-	-	-	4	1	14	-	5	4	8	3	1	1	-
20	2	-	-	-	-	-	-	-	-	-	-	3	4	1	-	41	1	3	-	-	10	3
5	-	-	3	2	-	2	-	-	-	-	-	1	1	5	-	5	1	-	-	-	11	-
31	1	-	-	4	2	3	-	-	-	3	-	-	2	2	-	-	14	-	-	-	4	1
15	-	3	-	2	4	-	-	-	-	-	1	-	2	-	-	8	3	-	2	-	2	-
34	-	1	1	1	1	-	3	-	-	-	1	1	5	-	-	2	-	-	-	-	6	-
42	-	1	-	-	5	1	-	-	-	-	-	1	1	7	-	-	2	-	-	-	-	1
7	-	2	1	1	-	-	4	-	-	-	-	2	2	4	-	2	1	-	2	2	4	1
38	-	-	-	14	2	4	-	-	-	-	-	-	-	8	-	-	-	3	-	-	5	3
1	-	-	2	1	-	-	-	-	-	-	2	-	7	3	-	-	1	1	-	-	1	-
32	1	2	1	7	-	-	-	1	-	-	1	-	-	-	-	-	13	4	-	-	7	-
6	1	-	1	1	-	-	2	-	-	-	-	1	2	2	-	-	1	-	1	-	-	-
8	-	-	1	-	-	-	-	-	1	-	-	-	2	1	-	7	-	-	-	2	7	-
21	1	-	4	3	1	3	-	-	-	-	1	1	4	-	-	2	-	-	-	-	4	-
29	-	-	2	-	-	-	-	2	-	-	-	1	2	2	-	-	3	-	1	-	8	-
3	4	-	1	-	-	-	1	-	-	-	-	-	4	2	1	3	-	-	-	1	3	-
28	-	1	-	2	-	-	-	-	-	-	3	-	1	10	-	2	-	-	-	-	3	1
25	1	1	1	2	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	3	3	-
43	-	-	-	1	1	1	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-
24	-	2	-	3	-	-	-	-	-	-	-	2	-	-	2	1	2	-	-	-	-	-
2	-	-	-	-	5	1	-	-	-	-	-	-	7	3	-	2	1	-	-	-	-	-
40	-	-	4	9	2	1	1	-	-	-	-	-	1	-	-	-	1	-	1	-	-	-
14	-	-	-	4	8	-	-	-	-	-	-	-	1	-	-	1	-	1	-	-	-	-
41	-	-	-	5	-	1	1	-	-	-	1	2	-	-	-	-	5	-	-	1	1	-
13	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	2	2	1	-	-	2	-
4	-	-	2	5	2	1	-	-	-	-	-	1	5	-	-	-	1	-	-	-	-	-
18	1	2	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	1	-
12	4	-	1	-	-	-	-	-	-	-	-	1	5	-	-	1	-	1	-	-	3	-
9	2	-	2	1	2	-	-	-	-	-	-	1	2	2	-	-	1	-	-	-	-	-
10	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2	-	-
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27	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	1	4	-	-	-	-	-
26	1	-	-	2	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
37	1	-	-	-	1	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
11	-	-	-	1	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
35	-	-	-	-	1	-	-	-	-	1	-	-	4	-	-	-	-	-	-	-	-	-
17	-	-	1	2	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-

Table A.5 Detailed Distribution of General Baby-Centred Comments Across Dyads.

# Appendix B

## Interview Questions Grouped According to Issue

Questions of a longitudinal nature (analytically from 4 interviews)

1) Issues relating to baby's preferences and dislikes (their development and progress over time). Interviewing includes questions referring to baby's reactions to new tastes. (Interviews 1, 2, 3, 4).

---

* How does baby react to a new taste?

* How long has it been since he has had something new?

* Have baby's preferences changed over the last 6 months
  (a) generally (b) gone off (c) got used to ...

* Does baby have favourite foods?
  What are they?
  How does he react to them?

* Are there foods baby dislikes very much?
  What are they?
  How does he react to them?

* Do you have any idea why he has come to like x, y, z so much and/or dislike a, b, c so much? (or why he is such a good eater?)

2) Issues concerning baby's appetite/how hungry he is instead of what he actually likes/prefers (2, 3, 4) and/or overall attitudes to food (2).

---

* Are there any specific times of the day and/or situations when baby is more willing to eat/more hungry?

* Are there any days/meals when he doesn't want to eat at all?

* What is baby's general attitude towards food and eating (and has it changed over these last 6 months?)

3) Issues concerning mother's policy(ies) towards:

a) food offered to baby/family (2, 3, 4).

b) baby's rejection of specific food and/or whole meal (1, 2, 3, 4).

c) mealtimes (1, 2, 3, 4).

---

a) * How often do you offer food he prefers?

* How do you decide what to give baby?

* If he seems more hungry at a particular meal, would you give him a bigger meal?

* Do you have the same amount of food at each meal? If he seems more hungry, do you give him a bit more?

* Does he have snacks?
What are they?
How often?

* Do you offer baby things you and/or the rest of the family do not like?

b) * Mother's policy about baby's refusing a meal/specific food item.

* Mother's policy about offering baby things he has refused/ dislikes.

* Of all the things you have ever given him, can you remember things he rejected and you never came back to? What are they?

* What do you think are the reasons for his refusal/dislike?

c) * Does baby participate in family meals?

* Does he try to feed himself?

* Do you ever help him? On what occasions and how often?

* Do you stick to mealtimes rigidly? When does he have his meals?

4) Issues concerning mother's feelings about feeding and its management (1, 2, 3, 4).

---

* How do you feel about feeding him?

* How do you feel about the mess he makes when feeding himself?

* Do you think that you are getting better at feeding him? That you have learned something? If so what? If you were to start again or if you had another baby, what would you do (differently)?

* Comparing feeding him when he <u>first</u> started on solid foods and <u>now</u> that he has been having solids for about a year, have your feelings toward feeding changed? How?

5) Issues concerning comparing the baby studied with other siblings (1, 2, 3, 4).

---

* When your other child/children was the baby's age, how did they compare with him?

6) Issues concerning taste of all family members (3, 4).

---

* How do you decide what meals to prepare for the whole family?

* Do you find that members of the family like more or less the same things?

Some psychological aspects of mother-baby interactions during early solid feeding

7) * Would you say that, on the whole, he is an easy or difficult child?

* Has he been easy/difficult to feed as well? So, does his behaviour during feeding reflect his general temperament and personality?

* How important has feeding been in your getting to know the child?

* Do you feel that you have had to adjust to his own ways (temperament/personality), either in feeding or in other activities? In what way(s)?

# Appendix C


C.1 Instructions for Transcribing the Behaviour Units onto Coding Sheets C1

C.2 First (Original) and Second Codings of Sessions on Reliability Tape C4

C.3 Agreement Matrices and Kappa Coefficients for Reliability Codings C7

# C.1

## INSTRUCTIONS FOR TRANSCRIBING THE BEHAVIOUR UNITS ONTO CODING SHEETS

| COLUMN | CODE | INFORMATION INCLUDED |
|---|---|---|
| 1 | 1 | new case/subject |
| | 3 | continuation line (previous cycle continued on this line) |
| | 2 | change of course |
| | 8 | drink break; different course follows |
| | 9 | drink break; same course continues |
| | 4 | break - pause to play (including any communication between M. and B.: playful and/or food-related |
| | 7 | break - irrelevant to solid feeding per se, plus other 'housekeeping' activities (e.g. adjusting B. in chair) |
| | 6 | break - B. eating food other than 'proper' meal (i.e. not fed by M. e.g. eating a biscuit) |
| | 5 | missing data |
| 2 | | baby looking while mother preparing: |
| | 0 | at mother |
| | 1 | at food |
| | 2 | away |
| | 3 | at mother and food |
| | 4 | at source of distraction (M. either does or provides something that will attract B.'s attention towards feeding) |
| | 5 | baby crying - can't detect where looking |
| | 6 | eyes closed |
| | 7 | can't detect |
| 4-8 | | onset time of mother's preparing (e.g. 5min 11.6sec: 05116) |
| 10 | 2-8 | code for next component unit - see A) under General Comments below |
| 12 | | mother's pausing to monitor <u>before</u> onset of activity coded in col.10 |
| | 0 | no |
| | 1 | non-communicative glance |
| | 2 | a more 'conversational' glance (includes probing, attracting B.'s attention with toy, etc.) |
| | 3 | can't detect |

| COLUMN | CODE | INFORMATION INCLUDED |
|---|---|---|
| 14 | 0-7 | baby's direction of gaze (coding as for col.2) |
| 15 | | presentation of food: |
| | 1 | midline |
| | 0 | other |
| 16 | | baby's mouth open in anticipation? |
| | 1 | yes |
| | 0 | no |
| | 2 | open for irrelevant reasons (e.g. crying) |
| | 3 | can't detect |
| 17-21 | | onset time for activity coded in col.10 (as for cols 4-8) |
| 23 | 2-8 | code for next recorded behaviour (cf col.10) |
| 24 | | as col.14 |
| 25 | | as col.15 |
| 26 | | as col.16 |
| 27-31 | | as cols 17-21 |

etc.

General Comments

A) Labelling Codes for Behaviours Coded:

| | |
|---|---|
| PREPARE | Omitted because always occurs at beginning of cycle. |
| CLOSE OFFER | 2 |
| FAR OFFER | 3 |
| FOOD IN MOUTH | 4 |
| MONITORING PAUSE | 5 |
| ACTIVE PAUSE | 6 |
| BREAK | 7 |
| END OF CYCLE | 8 |

B) If a specific item of information is not appropriate for a particular unit component (e.g. in a 6-string we are not interested in the issue of whether baby's mouth is open or not), the corresponding column is filled with a 9.

C) If one or more continuation lines are included in a cycle, then, after recording a 3 in column 1, continue recording in column 23 of the continuation line.

D) A 4-string is <u>always</u> preceded by a 2-string, even if the time between the 3-string and the 2-string is very brief: it is assumed that the mother must make some kind of offer - no matter how brief - as part of her strategy to 'feed' the child.

E) It must be stressed that for the present purposes we are <u>only</u> interested in those parts of the feeding where the <u>mother</u> is feeding the child <u>solid food</u>. Any instance of the child feeding himself, or playing, or hav having a drink, will be excluded from coding in detail, although a code in column 1 (4,6,7,8,9) will acknowledge the fact that a specific instance occurred, and thus explain the (greater) time interval between the end of the previous cycle and the beginning of the present one.

## First Coding

```
 1     1  00001      10000014 000000105
 2      2 08291 2 0 21008396 421108416 829108438
 3      2 08444 2 0 21108532 421108563 825109000
 4      2 09037 2 0 61309065 461109087 829109107
 5      2 09112 2 0 01109194 471109203 829109222
 6      2 09227 2 0 21009292 421109302 829109321
 7      2 09326 5 2 29909347 201109376 401109397 829109423
 8      2 09427 5 2 29909462 221109480 411109498 829109546
 9      2 09552 2 0 21010033 421310050 829110090
10     82 11063 5 2 29911097 221211127 411111144 529911155 622911181 529911195
11     3                    221011209 421111225 829211250
12      1 11259 2 0 11011284 421111302 809111332
13      0 11337 2 0 21011371 421111390 829111403
14      2 11409 2 0 21011462 421111480 809111501
15      0 11506 2 0 21111550 401111558 829111585
16      2 11591 2 0 21012026 401112059 809112109
17      0 12116 2 0 01012145 401112163 809112176
18      0 12181 2 0 21012250 421112260 825112276
19      2 12315 2 0 21012355 421112445 829112464
20      2 12472 2 1 01012505 421112528 829112571
21      2 12579 2 0 21013000 421113018 819113055
22      1 13060 2 0 21113092 421113122 825113130
23      2 13175 2 0 21013202 411113216 829113243
24      2 13251 2 0 11013270 421113280 829113296
25      2 13305 2 0 01113355 401113366 805113374
26      2 13397 2 0 21013457
27      2 13498 2 0 01113531 421113544 829113578
28      2 13584 2 0 21014026 401114195 829114232
29      2 14238 2 0 11114274 401114281 809114312
30      0 14318 2 0 21014361 320014372 221114418 421114424 829114444
31      2 14449 2 0 01114497
32      2 14523 2 0 11114562 461114572 929114589
33      1 14594 2 0 21015055 401115126 809115141
34      0 15145 2 0 11015196 421115219 825115229
35      2 15275 2 0 01015303 421115356 829115370
36      2 15377 2 0 11115404 421115413 829115439
37      2 15447 2 0 01015465 421115540 829115564
38      2 15568 2 0 21016011 401116029 829116088
39      2 16096 2 0 21016129 401116205 805116215
40      3 16237 2 0 21016267 421116384 809116414
41      1 16418 2 0 21016440 401116467 829116489
42      2 16495 2 0 21016530 461116549 829116578
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44      2 17110 2 0 11017146 421117201 829117214
45      2 17220 2 0 21117262 461117276 829117289
46      2 17297 2 0 21017329 310017420 201017425 421117485 825117510
47      2 17524 2 0 11017557 461117577 829117588
48      2 17594 2 0 21018051 320018070 221018088 461118231 825118249
49      2 18308 2 0 11318340 461118354 829118377
50      2 18382 2 0 11318399 320018422
51      2 18444 2 0 21018462
52     1  00003      10000007 000000105
53      3 00050 2 0 01100077 401300078 809100094
54      0 00102 2 0 01300125 401300138 809100157
55      0 00158 2 0 21000180 471300194 809100204
56      2 00209 2 0 31300231 401300245 839100260
57      3 00267 2 0 01300296 471300311 829100326
58      3 00335 2 0 01100352 471300366 809100376
59      3 00382 2 0 01300410 471300422 809100434
60      1 00438 2 0 01300465 471300476 829100490

61      2 00495 2 0 11300518 471300529 809100536
62      2 00542 2 0 31300570 471300581 809100596
63      1 01003 2 0 11301026 471301036 809101051
64      2 01054 2 0 11301081 471301091 819101106
65      3 01110 2 0 21001138 471301147 809101161
66      3 01166 2 0 01101197 471301209 809101221
67      3 01229 2 0 71101259 471301269 809101282
68      0 01289 2 0 01301315 401301329 809101334
69      0 01340 2 0 21301371 471301387 819101400
70      3 01405 2 0 21301441 471301450 819101465
```

## Second Coding

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 3      2 08444 2 0 21008534 471108562 626908585 221009025
 4      2 09036 2 0 11009063 421109082 829109107
 5      2 09112 2 0 01009195 471109205 829109221
 6      2 09226 2 0 21009289 471109305 829109319
 7      2 09325 2 2 01109376 471109399 829109422
 8      2 09427 2 2 21109481 471109499 829109545
 9      2 09552 2 1 21010033 471310051 829110089
10     82 11063 3 2 20211108 261211130 411011145 529911157 622911181 529911196
11     3                    221011211 471111226 829211251
12      2 11256 2 0 01011284 421111303 809111332
13      0 11336 2 0 21011372 421111389 829111403
14      2 11407 2 0 21011462 471111482 809111502
15      0 11506 2 0 21111549 471111559 829111583
16      2 11591 2 0 21012026 401112057 809112110
17      0 12116 2 0 01012144 401112163 809112175
18      0 12181 2 0 21012252 471112261 829112276
19      2 12313 2 0 21012355 421112446 829112464
20      2 12464 2 0 01012505 421112530 829112571
21      2 12578 2 0 21013001 421113020 819113056
22      1 13058 2 0 21013096 421113123 829113131
23      2 13175 2 0 21013202 471113211 829113241
24      2 13249 2 0 11013268 421113280 829113296
25      2 13302 2 0 01013355 401313368 829113391
26      2 13396 2 0 21013455
27      2 13497 2 0 01113530 421113542 829113579
28      2 13583 2 0 21014028 471114196 829114230
29      2 14236 2 0 11114274 471114282 809114313
30      0 14318 2 0 21014359 471114424 829114444
31      2 14449 2 0 01014494
32      2 14522 2 0 21114568 471114573 829114588
33      1 14593 2 0 21015055 401115124 809115141
34      2 15146 2 0 11015198 471115220 879115229
35      2 15216 2 0 01015302 421115357 829115370
36      2 15375 2 0 11115404 421115414 829115439
37      2 15447 2 0 01015465 421115541 829115563
38      2 15567 2 0 21016010 401116031 829116089
39      2 16094 2 0 21016129 471116206 809116216
40      3 16237 2 0 21016267 471116384 839116414
41      2 16419 2 0 21016440 401116468 829116489
42      2 16496 2 0 21016531 471116550 829116577
43      2 16582 2 0 21017023 471117077 829117104
44      2 17109 2 0 71017146 421117200 829117214
45      2 17223 2 0 21017259 471117274 829117290
46      2 17297 2 0 21017330 471117487 875117509
47      2 17526 2 0 71017558 471117576 829117588
48      2 17593 2 0 71018049 370018073 271018086 471118231 829118250
49      2 18308 2 0 71018339 471118355 829118377
50      2 18380 2 0 71318398 320018423
51      2 18439 2 0 21018459
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53      3 00044 2 0 01300076 471100088 809100094
54      3 00100 2 0 01300124 471100137 809100150
55      3 00156 2 0 11300181 471100195 809100205
56      2 00209 2 0 11300232 471100247 819100259
57      3 00266 2 0 01300297 471100309 829100326
58      3 00322 2 0 11100351 471100361 809100377
59      3 00382 2 0 01000409 471100422 839100433
60      3 00438 2 0 11000465 471100476 829100490

61      1 00492 2 0 11300518 471100529 839100536
62      1 00541 2 0 11000568 471100581 839100597
63      3 01001 2 0 11001026 471101037 839101051
64      2 01055 2 0 11101081 471101092 939101107
65      3 01111 2 0 21301138 471101148 809101161
66      3 01166 2 0 01301197 471101208 809101221
67      0 01231 2 0 71301258 471101269 809101283
68      0 01289 2 0 01301317 471101328 809101335
69      0 01340 2 0 21301373 471101388 819101401
70      2 01405 2 0 11301440 471101450 829101465
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## First Coding

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 74      3 02120 2 0 21102162 471302172 809102190
 75     1  00004     10000014 000000030
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 77      2 04406 2 0 11004454 401104488 809104490
 78      2 04500 3 2 11004530 211004584 421104599 819105032
 79      3 05040 3 1 11005059 211005092 421005185 829105199
 80      3 05209 2 0 11105242 401105259 829105305
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 82
 83      2 05589 2 0 21006017 451106052 859106070
 84      3 06083 2 0 11006147 451106162 815106186
 85      3 06213 3 0 31006242 231106283 451106299 859106353
 86      2 06363 2 1 11106476 451106487 825106505
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 88      0 07191 3 0 01007208 211007234 451107254 855107256
 89      2 07363 3 0 20007384 221107404 421107417 855107430
 90      2 07497 2 0 51107529 451107559 509908004 622908087 251008110 451108123
 91     3                    855108138
 92     1  00008     10000012 000000030
 93      2 02058 2 0 21002104 421102118 829102133
 94      2 02139 3 2 29002163 261102206 461102219 804102236
 95      1 02248 3 2 29002272 211102290 623102299 261002326 623002329 201002345
 95.5   3                    401102359 809102372
 96      2 02380 2 1 11002419 461102432 819102448
 97      1 02455 6 1 13002520 211002560 421102574 829102588
 98      1 02594 6 1 13003031 211003076 421103092 869103107
 99      2 03111 3 1 29003155 221003182 421003207 809103225
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101      2 03347 2 0 21003394 421103407 829103417
102      1 03424 2 2 21003490 421103506 829103525
103      2 03530 3 1 29003599 261104007 421104037 829104053
104     1  00005     20000012 000000060
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106      0 04419 2 0 21004455 421104478 829104496
107      2 04500 2 0 21004526 421104540 809104557
108      0 04564 2 0 01304580 401104592 829105009
109      2 05015 2 0 11105032 401105040 809105046
110      0 05057 2 0 01005077 401105088 809105091
111      0 05099 2 0 01105131 401105138 809105142
112      2 05149 2 0 01105166 461105178 809105190
113      0 05195 2 0 01005220 401105229 809105242
114      0 05249 2 0 01005269 401105280 805105300
115      0 05311 2 0 01105340 401105350 809105366
116      0 05371 2 0 01105381 401105396 819105401
117      2 05410 2 0 21305447 401305475 809105488
118      0 05493 2 0 01005506 401105513 829105517
119      2 05525 2 0 11105551 421105589 829106002

120      2 06009 2 0 21006031 421106043 829106058
121      2 06064 2 0 21006089 421106098 829106101
122      2 06108 2 0 21106132 401106144 602906149 211006159 401106169 809206173
123      0 06184 2 0 01006199 401106218 829106224
124      2 06228 2 0 01106249 401106256 612906264 211006280 401106288 809206299
125      0 06306 2 0 01306342 401106350 612906357 211106366 401106373 809206376
126      0 06383 2 0 01106400 401106409 805106415
127      1 06433 2 0 01106464 401106472 612906478 211006486 401106493 809206496
128      1 06502 2 0 01106524 401106533 805106540
129     90 07126 2 0 01107145 401107153 809107163
130      0 07169 2 0 51307190
131      5 07198 2 0 51007219 411107254 809107268
132      0 07276 2 0 01307292 401107303 809107316
133      0 07320 2 0 01107345 401107356 805107366
134      0 07380 2 0 01007411 401107421 809107433
135      0 07441 2 0 01107474 411107482 819107486
136      0 07495 2 0 01307517 401107525 829107532
137      2 07544 2 0 01107575 401107584 809107597
138      0 08002 2 0 11008028 401108063 622908068 221008081 421108097 829208100
139
140      2 08106 2 0 21008131 421108141 829108155
```

## Second Coding

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 71      2 01471 2 0 71301503 471101518 819101532
 72      2 01538 2 0 71301578 471101588 819102004
 73      2 02009 2 0 11302068 471102078 672902087 211302100 471102108 829202115
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 80      1 05208 2 0 11105242 401105260 829105305
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 82     3                    211005548
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 84      0 06082 2 0 11006150 451106163 815106186
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 86      2 06364 2 0 11106475 451106489 825106505
 87      2 07006 2 0 01107037 451107078 859107101
 88     40 07192 2 2 51007236 451107253 855107277
 89     42 07364 3 0 20007385 221107404 451107417 855107429
 90      2 07497 2 0 51007534 451107554 652907571 509908004 622908087 251108115
 91     3                    451108123 855208131
 92     1  00008     000000030
 93      2 02058 2 0 21002103 471102119 829102134
 94      2 02139 2 2 11102208 411102224 809102236
 95      2 02249 2 2 11302288 623902302 201102352 401102363 809102373
 96      1 02381 2 0 11302417 471102434 819102447
 97      1 02453 2 0 11002560 461102578 829102588
 98      1 02595 2 0 11003076 471103095 829103107
 99      2 03112 3 0 20003162 221303181 471103207 829103226
100      2 03233 2 2 11103316 411103331 829103342
101      2 03347 2 0 11303395 411103408 829103417
102      1 03425 2 0 21003492 421103508 829103525
103      2 03530 2 0 11104008 421104041 819104053
104     1  00005     000000060
105      3 04356 2 0 01104398 401104409 809104412
106      3 04422 2 0 21004457 421104481 819104494
107      2 04502 2 0 21004527 411104542 909104551
108      0 04564 2 0 01004580 401104593 829105009
109      2 05016 2 0 01105033 401105044 809105047
110      0 05056 2 0 01005077 401105087 809105090
111      0 05096 2 0 01105130 401105140 809105142
112      1 05147 2 0 01105164 411105178 809105188
113      0 05194 2 0 01005222 411105232 809105243
114      3 05247 2 0 01005268 401105283 809105299
115      0 05312 2 0 01105341 401105353 809105365
116      0 05372 2 0 01105387 401105398 819105403
117      2 05410 2 0 11305449 401105476 809105488
118      0 05492 2 0 01005506 401105514 829105518
119      2 05524 2 0 11105551 421105562 622905568 211005579 421105589 829206002
120      2 06008 2 0 21006031 421106043 829106057

121      2 06062 2 0 21006088 421106099 829106102
122      2 06108 2 0 21006133 401106143 602906151 211006160 401106169 809206173
123      0 06184 2 0 01006200 411106220 829106223
124      2 05228 2 0 01106249 401106257 612906265 211006281 401106289 809206299
125      3 06304 2 0 01306343 401106351 612906356 211106366 401106373 809206377
126      0 06380 2 0 01106400 401106409 805106414
127      1 06434 2 0 01106464 401106471 612906479 201106489 401106494 809206495
128      0 06501 2 0 01106524 401106532 805106539
129     90 07127 2 0 01107145 401107153 809107162
130      0 07169 2 0 51307190
131      5 07196 2 0 01007219 411107236 612907243 211107248 411107254 809207266
132      0 07276 2 0 01307291 401107304 809107315
133      3 07321 2 0 01007346 401107361 809107367
134      0 07380 2 0 01007410 401107421 809107432
135      0 07440 2 0 01107472 411107482 819107486
136      0 07496 2 0 01007517 401107526 829107532
137      2 07542 2 0 01107575 401107587 809107597
138      0 08002 2 0 11008031 301008045 201108053 401108061 612908068 211008079
139     3                    411108097 829208100
140      2 08105 2 0 11008133 411108142 819108156
```

## First Coding

```
141      2 08161 2 0 11008179 401108189 602908197 211308220 401108229 809208232
142      0 08236 2 0 01008266 401108276 602908292 201108295 401108301 809208315
143      0 08320 2 0 01008348 401308360 602908368 201308374 401108388 829208396
144      2 08401 2 0 01108456 401108466 809108468
145      0 08474 2 0 01108523 401108532 809108538
146    1  00002       10000018 000000001
147      2 00128 2 0 11000203 421100219 622900235 221100258 421100277 829200300
148      1 00314 6 1 23900324 129900370 221100383 421100405 865100425
149      0 00457 2 0 01100491 401100508 805100550
150      0 00577 6 0 03900582 109901005 201101025 401101033 809101070
151      1 01124 2 0 11101155 411101172 815101211
152      2 01224 2 0 11101260 411101271 665901307 319001319 201101343 411101356
152.5  3                     809201386
153      2 01395 2 0 11101419 461101431 869101475
154      1 01481 2 0 11001509 411101521 809101569
155      2 01581 2 0 11102004 461102011 825102069
156      1 02087 2 0 11102123 461102144 819102248
157    1  00006       10000015 000000015
158      7 00189 2 0 71300207 471100219 879100234
159      7 00240 2 0 71100265 471100278 809100299
160      0 00309 2 0 71000345 471100358 875100374
161      7 00389 2 0 71100423 471100436 879100451
162      7 00460 2 0 71000484 471100507 879100526
163      7 00532 2 0 71100556 471100570 879100591
164      7 00597 2 0 71101020 471101039 879101064
165      7 01070 2 0 01001093 401101111 879101133
166      0 01140 2 0 01101174 401101193 879101214
167      7 01221 2 0 51201245 421101267 825101287
168      7 01309 2 0 01001337 401101359 879101376
169      7 01383 2 0 01101416 401101436 809101459
170      0 01466 2 0 01101491 401101507 809101525
171      0 01532 2 0 21101568 401101579 805102004
172      0 02023 2 0 71102049 401102065 875102096
173      7 02111 2 0 71102146 471102161 879102212
174      7 02219 2 0 71002241 471102260 879102299
175      7 02305 2 0 71002334 471102347 879102369
176      7 02376 2 0 71002403 471302415 829102434
177      7 02439 2 0 71002468 471102480 879102517
178    1  00007       20000013 000000001

179      0 00406 2 0 01000468 331000497 231000508 331000525 271300569 471300595
180    3                     509901242 201301262 471301280 809201367
181      0 01387 2 0 11301418 431301451 603901504 201301523
182      7 02198 2 0 11002251 471302318 579902366 211302376 471302409 579902431
183    3                     271302440 471302463 875302486
184      2 02538 3 0 11002589 211103019 411303034 819103148
185      7 03170 2 0 11303226 471303255 519903345 271303365 471303394 815203520
186
187      1 03548 2 0 11003591 411304075 825104140
188      2 04160 2 0 11304190 411304213 825104239
189      1 04275 3 0 11004327 211304364 471304378 529904458 672904479 221004502
190    3                     411104511 819204540
191      1 04556 3 0 11004585 211105006 421105030 672905066 211305085 401305092
192    1  00009       10000011 000000015
193      6 02568 2 0 01002587 451103003 622903035 211103050 461103062 829203091
194      2 03101 2 0 11103128 401103144 819103218
195      1 03222 2 0 11003247 461103260 622903295 211003309 421103319 622903334
196    3                     211003358 411103383 829303417
197      1 03423 2 0 11003444 421103453 622903489 211003504 471303527 622903535
198    3                     221303557 471303566 829303582
199    91 04558 2 0 11004580 411105001 602905034 211005049 461105082 622905106
200    3                     211005118 401105143 829305187
201      3 05191 2 0 11005225 401105244 622905293 211005319 421305340 602905355
202    3                     211005382 461305396 602905416 211005436 461105455
203    3                     829405477
204      2 05483 2 0 61005513 461105527 622905551 211305569 421305579 622905591
205    3                     251206017 451306026 819306065
206    91 07253 2 0 01007279 461107292 672907306 221007328 411107340 829207370
207      3 07421 2 0 21007441 401107474 602907493 211007525 401107541 809207566
208      3 07579 2 0 01008006 461108019 602908047 211008067 401108093 829209113
209      2 09118 2 0 31008167 411108186 819108251
210      1 03266 2 0 31008294 401108322 602908335 211008381 471108397 829208431
```

## Second Coding

```
141      2 08161 2 0 11008180 401108191 602908198 211108218 401108230 809208232
142      0 08237 2 0 01008266 401108275 809108314
143      0 09319 2 0 01008346 401108362 602908368 201008377 401108388 819208394
144      2 08400 2 0 01108455 401108466 839108469
145      3 08472 2 0 01008524 401108531 809108537
146    1  00002       000000001
147      2 00129 2 0 11000203 421100226 622900238 221100259 421100281 829200303
148     71 00372 2 0 11000383 401100413 805100427
149      0 00461 2 0 01100493 401100516 805100550
150      0 01007 2 0 01101025 401101037 809101072
151      1 01123 2 0 11101153 461101178 819101212
152      2 01227 2 0 11101260 411101277 519901319 211101341 461101362 819201387
153      2 01395 2 0 11101419 411101442 819101476
154      2 01483 2 0 11001507 411101534 809101571
155      2 01584 2 0 11002004 421102027 825102069
156      1 02089 2 0 11102128 411102159 815102248
157    1  00006       000000015
158      7 00189 2 0 71100205 471100219 879100233
159      7 00240 2 0 71100265 411100278 809100298
160      0 00308 2 0 71000345 471100358 875100376
161      7 00390 2 0 71100422 471100436 879100451
162      7 00460 2 0 71000483 471100508 879100526
163      7 00533 2 0 71100556 411100570 879100590
164      7 00598 2 0 71101020 471101040 879101063
165      7 01070 2 0 01001093 401101110 879101132
166      0 01139 2 0 01001174 401101193 879101214
167      7 01223 2 0 51201247 421101269 875101293
168      7 01309 2 0 01101338 401101359 879101376
169      7 01385 2 0 01101416 401101434 809101459
170      0 01469 2 0 21101492 421101510 829101525
171      0 01533 2 0 01101570 401101583 805102003
172      0 02024 2 0 01102051 401102066 825102091
173      2 02110 2 0 21002145 471102164 875102182
174      7 02217 2 0 71002241 471102261 879102298
175      7 02304 2 0 71002333 471102349 879102368
176      7 02375 2 0 71102403 471102417 879102432
177      7 02439 2 0 71002468 471102481 879102518
178    1  00007       000000001
179      0 00406 2 0 11000470 311000500 211300512 311000526 211300566 471301013
180    3                     509901248 201301264

181      7 01384 2 0 11301418 401301451 613901504 201301523
182      2 02143 2 0 11002249 471302343 271302370 471302412 579902429 271302439
183    3                     471302468 875302487
184      7 02537 2 0 11103021 471303043 879103148
185      2 03166 2 0 11303226 471303257 519903352 271303364 471303393 271303449
186    3                     411303493 825203522
187      1 03545 2 0 11103590 411304069 829104142
188      2 04161 2 0 11004186 411304207 825104240
189      1 04274 2 0 11304362 471304396 529904468 672904479 221004503 471304527
190    3                     819204539
191      1 04557 2 0 11104594 411105059 672905063 211305075 411305089 825205162
192    1  00009       000000015
193      5 02567 2 0 01002586 471103030 622903042 211003052 471103077 829203097
194      1 03106 2 0 11003126 471103171 819103216
195      1 03226 2 0 11003246 421103287 622903298 211003312 471103329 622903339
196    3                     211003358 411103386 829303417
197      1 03424 2 0 51003443 451103483 612903491 211003505 471103527 622903535
198    3                     221303554 471103569 829303585
199    91 04558 2 0 11004575 411105026 612905041 211005072 471105082 612905107
200    3                     211005123 401105145 819305167
201      3 05194 2 0 11005224 421105287 612905295 211005319 471105347 602905355
202    3                     211005383 471105401 612905415 211005437 471105460
203    3                     829405476
204      1 05483 2 0 11005515 421105540 672905552 211005567 421105584 672905599
205    3                     251006015 421106035 819306066
206    91 07253 2 0 01007277 471107300 672907308 211007328 421107359 829207370
207    73 07422 2 0 11007446 421107466 612907492 211007511 421107542 809207559
208      1 07579 2 0 01008004 421108035 622908054 211008083 401108123 829209155
209      2 08162 2 0 01008203 421108233 809108255
210      1 08268 2 0 11008294 421108331 602908340 211008364 401108407 809208427
```

DYAD 1, DAY 105: Baby's gaze

| | | FIRST CODING | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Behaviour codes* | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| SECOND CODING | 0 | 25 | 1 | 1 | - | - | - | - | 1 |
| | 1 | - | 9 | 1 | - | - | - | 1 | - |
| | 2 | - | 1 | 115 | - | - | - | 1 | - |
| | 3 | 1 | - | - | 1 | - | - | - | - |
| | 4 | - | - | - | - | - | - | - | - |
| | 5 | - | - | - | - | - | - | - | - |
| | 6 | - | - | 1 | - | - | - | - | - |
| | 7 | 4 | 4 | 16 | - | - | - | 7 | 2 |

Kappa = 0.618

DYAD 3, DAY 105: Baby's gaze

| | | FIRST CODING | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Behaviour codes | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| SECOND CODING | 0 | 17 | - | - | 1 | - | - | - | - |
| | 1 | 3 | 5 | 4 | 4 | - | - | - | - |
| | 2 | 1 | 1 | 9 | 2 | - | - | - | - |
| | 3 | 6 | 4 | - | 6 | - | - | - | - |
| | 4 | - | - | - | - | - | - | - | - |
| | 5 | - | - | - | - | - | - | - | - |
| | 6 | - | - | - | - | - | - | - | - |
| | 7 | 7 | - | 1 | - | - | - | - | 20 |

Kappa = 0.528

* see Section C.1

DYAD 4, DAY 30: Baby's gaze

| SECOND CODING \ FIRST CODING | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 0 | 5 | - | - | 4 | - | - | - | - |
| 1 | - | 11 | 1 | 1 | - | - | - | - |
| 2 | - | 1 | 19 | - | - | - | - | - |
| 3 | - | - | - | 1 | - | - | - | - |
| 4 | - | - | - | - | - | - | - | - |
| 5 | 1 | - | - | - | - | 17 | - | - |
| 6 | - | - | - | - | - | - | - | - |
| 7 | - | - | - | - | - | - | - | - |

Kappa = 0.826

DYAD 8, DAY 30: Baby's gaze

| SECOND CODING \ FIRST CODING | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 0 | 3 | - | 1 | - | - | - | 1 | - |
| 1 | - | 8 | 6 | - | - | - | 3 | - |
| 2 | - | 1 | 18 | - | - | - | - | - |
| 3 | - | - | - | - | - | - | - | - |
| 4 | - | - | - | - | - | - | - | - |
| 5 | - | - | - | - | - | - | - | - |
| 6 | - | - | 2 | - | - | - | - | - |
| 7 | - | - | 3 | - | - | - | 1 | - |

Kappa = 0.421

DYAD 5, DAY 60: Baby's gaze

| SECOND CODING \ FIRST CODING | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 0 | 109 | 2 | - | - | - | 1 | - | - |
| 1 | 2 | 17 | 9 | - | - | - | 1 | - |
| 2 | - | - | 30 | - | - | - | - | - |
| 3 | 7 | - | - | - | - | - | - | - |
| 4 | - | - | - | - | - | - | - | - |
| 5 | - | - | - | - | - | 2 | - | - |
| 6 | - | - | - | - | - | - | - | - |
| 7 | - | - | - | - | - | - | - | - |

Kappa = 0.781

DYAD 2, DAY 1: Baby's gaze

| SECOND CODING \ FIRST CODING | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 0 | 9 | - | 1 | - | - | - | 1 | - |
| 1 | 2 | 15 | 2 | - | - | - | 4 | - |
| 2 | - | - | 10 | - | - | - | 1 | - |
| 3 | - | - | - | - | - | - | - | - |
| 4 | - | - | - | - | - | - | - | - |
| 5 | - | - | - | - | - | - | - | - |
| 6 | - | 1 | - | - | - | - | - | - |
| 7 | - | - | - | - | - | - | - | - |

Kappa = 0.626

DYAD 6, DAY 15: Baby's gaze

| SECOND CODING \ FIRST CODING (Behaviour codes) | 0 | 1 | 2 | 3 | 4 | 5 | 6 | ? |
|---|---|---|---|---|---|---|---|---|
| 0 | 18 | - | 1 | - | - | - | - | 1 |
| 1 | - | - | - | - | - | - | - | 2 |
| 2 | 3 | - | 1 | - | - | - | - | 3 |
| 3 | - | - | - | - | - | - | - | - |
| 4 | - | - | - | - | - | - | - | - |
| 5 | - | - | - | - | - | 1 | - | - |
| 6 | - | - | - | - | - | - | - | - |
| 7 | - | - | 2 | - | - | - | - | 48 |

Kappa = 0.705

DYAD 7, DAY 1: Baby's gaze

| SECOND CODING \ FIRST CODING (Behaviour codes) | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 0 | 4 | - | - | - | - | - | - | - |
| 1 | 3 | 16 | 1 | 4 | - | - | - | 1 |
| 2 | - | 2 | 5 | - | - | - | - | 2 |
| 3 | - | - | - | - | - | - | - | - |
| 4 | - | - | - | - | - | - | - | - |
| 5 | - | - | - | - | - | - | - | - |
| 6 | - | - | - | - | - | - | - | - |
| 7 | 1 | 4 | 1 | - | - | - | - | 13 |

Kappa = 0.530

DYAD 9, DAY 15: Baby's gaze

| Behaviour codes | | FIRST CODING 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|---|
| | 0 | 9 | 1 | 1 | 1 | - | - | - | 1 |
| | 1 | 3 | 26 | 8 | 2 | - | - | 1 | - |
| | 2 | 5 | 2 | 13 | - | - | 1 | 3 | - |
| SECOND CODING | 3 | - | - | - | 1 | - | - | - | - |
| | 4 | - | - | - | - | - | - | - | - |
| | 5 | - | 1 | 1 | - | - | 1 | 1 | - |
| | 6 | - | - | - | - | - | - | - | - |
| | 7 | 1 | - | 4 | - | - | 1 | 5 | 3 |

Kappa = 0.417

DYAD 4, DAY 30: Baby's mouth open in anticipation

| Behaviour codes | | FIRST CODING 0 | 1 | 2 | 3 |
|---|---|---|---|---|---|
| | 0 | 12 | 2 | - | - |
| | 1 | 3 | 29 | - | - |
| SECOND CODING | 2 | - | - | 1 | - |
| | 3 | - | - | - | - |

Kappa = 0.544

DYAD 8, DAY 30: Mother monitoring

| Behaviour codes | | FIRST CODING 0 | 1 | 2 | 3 |
|---|---|---|---|---|---|
| | 0 | 2 | 5 | 1 | - |
| | 1 | - | - | - | - |
| SECOND CODING | 2 | - | 1 | 2 | - |
| | 3 | - | - | - | - |

Kappa = 0.199

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